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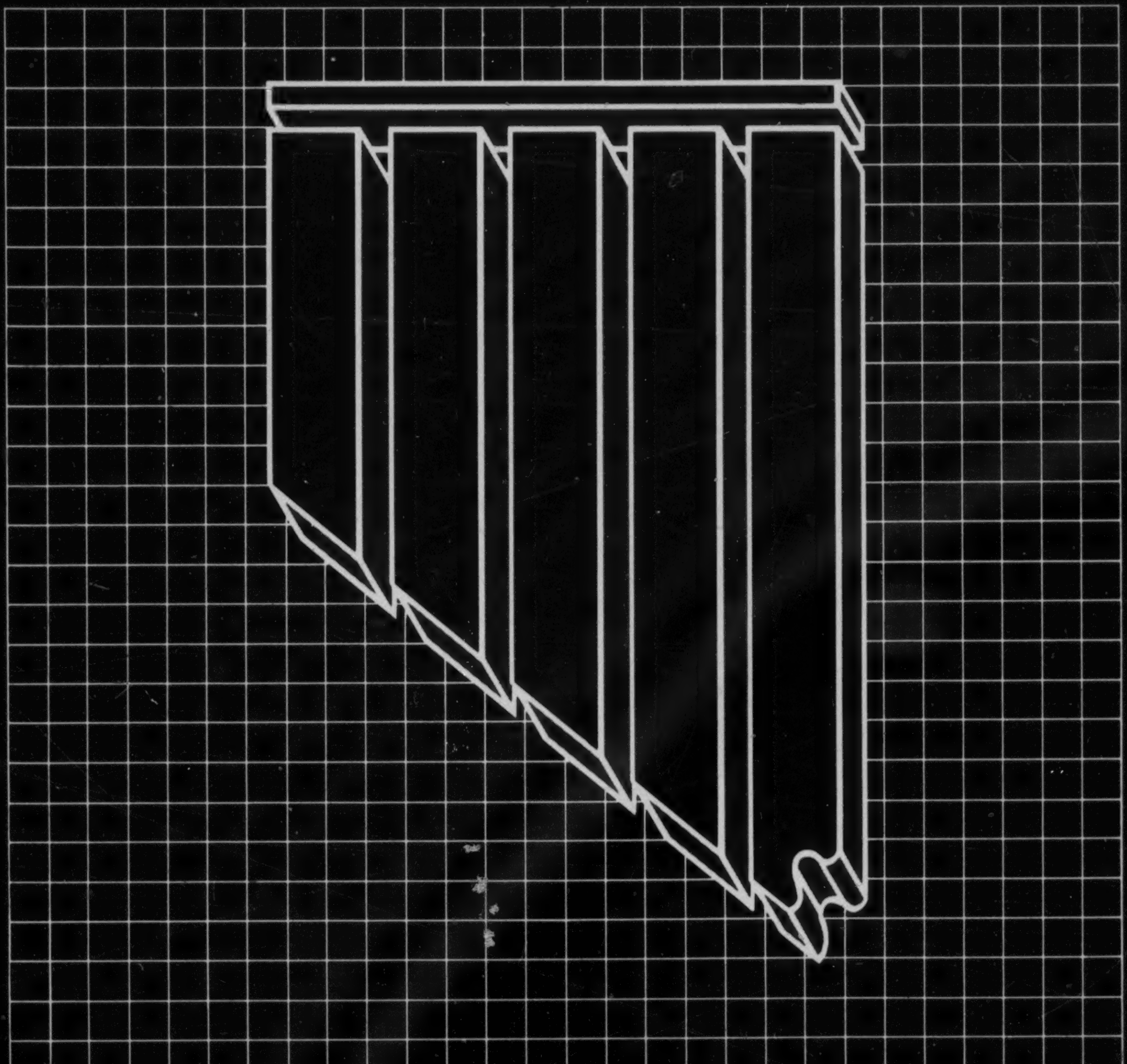

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Editor's Note

The Fall 1989 issue of the *Nevada Review of Business & Economics* will be the only issue published for volume XIII. The next issue of the *Review* will be Winter 1989/90, Volume XIV, No.1.

Compliance with the Money Laundering Control Act in a Casino Environment

*by John R. Mills**

The Anti-Drug Abuse Act which was enacted in October of 1986 includes under Subtitle H, the Money Laundering Control Act of 1986.[1] This bill effectively provides teeth to the original Bank Secrecy Act of 1970[2] which requires financial institutions to report certain transactions to the federal government. The primary purpose of the reporting requirements of the Bank Secrecy Act is to identify the sources, volumes and movements of United States currency being transported into or out of the country or being deposited in financial institutions, in order to aid law enforcement officials in the detection and investigation of criminal, tax, and regulatory violations.

The Money Laundering Act of 1986 provides a fine of not more than $500,000 or twice the value of the property involved in the transaction or imprisonment for not more than twenty years to individuals who knowingly try to conceal or disguise the nature of specified unlawful activity or to avoid a transaction reporting requirement under the Bank Secrecy Act or other state or federal law.

Many individuals may be familiar with the Bank Secrecy Act as a result of the publicity associated with the Bank of Boston's guilty plea as well as civil money penalties against 19 other banks. Bank of America, for example, was assessed $4.75 million in penalties in January 1986[3] for failing to report cash transactions over $10,000. Few appear to realize that the regulations set out in the Bank Secrecy Act apply to more than just banks. This Act applies to any person doing business in one or more of the following capacities:[4]

1) A bank;
2) A broker or dealer in securities;
3) A person who engages as a business in dealing in or exchanging currency;
4) A person who engages as a business in the issuing, selling, or redeeming of traveler's checks, money orders, or similar instruments;
5) A licensed transmitter of funds, or other person engaged in the business of transferring funds abroad for others;
6) A casino or gambling casino licensed as a casino or gambling casino by a state or local government and having gross annual gaming revenue in excess of $1,000,000.

The Bank Secrecy Act was enacted in 1970, but it has been only recently (1986) that federal agencies such as the Internal Revenue Service (IRS) and the Treasury Department have attempted to enforce this Act. Unfortunately, the agencies' attempts to enforce these laws have shifted a large amount of the burden of collection of evidence onto the private sector industries. The creation of controls and procedures to prevent money laundering in cash-based industries such as casinos has placed a substantial amount of burden on the accounting departments of these casinos along with large amounts of paperwork. This article reviews the requirements of the Act and the implementation of controls and procedures for compliance with the Act in the casino industry.

Money Laundering: Background

Money Laundering Defined

The President's Commission on Organized Crime has defined money laundering as the "process by which one conceals the existence, illegal source, or illegal application of income, and then disguises that income to make it appear legitimate."[5] Thus the function of money laundering is the hiding of the paper trail that connects income or money with a person so that the individual can evade the payment of taxes or avoid prosecution.

One major source of money laundering is drug trafficking. It is estimated that Americans spend between $50 to $75 billion each year to buy illegal drugs.[6] Many of these transactions are paid for with small denomination bills such as $10's and $20. This necessitates an exchange of these bills for larger ones or else the need to find a place to deposit these funds. This can be done in a variety of ways, such as purchasing cashier's checks in false names, or depositing cash into dummy accounts and then transferring funds by wire to foreign sources. Most transactions require the use of financial institutions and thus the Money Laundering Act forces these institutions to provide evidence on these types of transactions to the Treasury Department or to the IRS.

Casino Reporting Requirements

Casinos can fall under two different reporting requirements based on the size of their operations and whether they are reporting gaming versus nongaming transactions. Title 26, enacted by the IRS entitled "Income Taxes; Returns Relating to Cash Payments in Excess of $10,000 Received in a Trade or Business"[7] covers the hotel and banquet services part of the casino business. In addition Title 26 also covers

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casino operations which do not report under Title 31 of the Bank Secrecy Act. State Gaming Commissions were given the choice of being administered by the Treasury Department or creating their own regulations to conform to the Bank Secrecy Act. New Jersey chose to fall under the control of the Treasury Department and its rulings. The Nevada Gaming Commission chose to maintain control at the state level and thus implemented Nevada Regulation 6A.

There has been concern by the Nevada Gaming Industry over a recent Treasury Department announcement which modifies the casino reporting and recordkeeping requirements under Bank Security Act regulations issued Aug. 24, 1988. The concern is that this modification would eliminate Nevada Regulation 6A. At present, the Treasury Department appears to indicate that the modifications will only apply to casinos falling outside of Nevada 6A Regulations.[8] This paper deals only with the reporting of Title 31 and Nevada Regulation 6A.

Reporting Requirements

Section 103.22 of the Bank Secrecy Act calls for the following reporting requirements for currency transactions:[9]

> Each casino shall file a report of each deposit, withdrawal, exchange of currency, gaming tokens or chips, or other payment or transfer, by, through, or to such casino which involves a transaction in currency of more than $10,000. Multiple currency transactions shall be treated as a single transaction if the casino has knowledge that they are by or on behalf of any person and result in either cash in or cash out totalling more than $10,000 during any twenty-four hour period.

The actual implementation of this regulation was left up to the Nevada Gaming Commission and the individual casinos. It was not until June 1985 that the Gaming Control Board issued Regulation 6A that specifically dealt with accounting controls for assuring compliance with the Bank Secrecy Act and currency transactions. Modifications to Reg. 6A are still under consideration as of January 1989. Basically, Regulation 6A identifies transactions that require reports and provides the ground rules for defining multiple transactions.[10]

Defining Regulation 6A Transactions

Most casinos have run various employee training sessions to familiarize the employees with the requirements of Regulation 6A. Still, there are a substantial number of situations that could lead to non-compliance without vigilant attention by the employees. The majority of these situations involve 1) the rules for the aggregation of transactions to meet the $10,000 limitation and 2) the definition of winnings.

These two areas play a key role in compliance with Reg.6A and the Bank Secrecy Act. First, any cash transactions over $10,000 or the aggregation of sums over $10,000 must be reported to the Treasury Department via the Nevada Gaming Control Board. Such reports include the patron's name and social security number and must include verification of the same. Winnings over $10,000 must also be reported, but these *are not* reported to the Treasury Department. They are only reported to the Gaming Control Board. In addition, these reports *do not* include the individual patron's name or social security number. Therefore, individuals who are actually trying to launder money want to keep the transactions under $10,000 or in some way make the money they exchange appear to be winnings.

The casinos' attempts to comply with Regulation 6A have presented a real public relations problem with patrons of the casino. Many wealthy clients object to filing reports every time they spend large sums of money and tend to blame the casino for this inconvenience. Many of the casinos have remedied this problem by providing pamphlets to their patrons explaining the reporting requirements. Bally's, as an example, provides the following information in the pamphlet distributed to their customers:

> We would like to inform you of a new Nevada State regulation which all Nevada Casinos must follow. This regulation is similar to Title 31 of the United States Department of Treasury's Bank Secrecy Act, except that the Nevada Regulation does not require Nevada casinos to report winnings. It is also similar to Title 26, the Internal Revenue Code, which now requires all businesses to report cash transactions over $10,000.
>
> We are required to file a report on the following types of transactions:
>
> 1. Cash purchases of chips aggregating more than $10,000 within a 24-hour period.
> 2. Cash wagers aggregating more than $10,000 within a 24-hour period.
> 3. Cash deposits for safekeeping or front money aggregating more than $10,000 in a 24-hour period.
> 4. Cash payments of markers aggregating more than $10,000 in a 24-hour period.
>
> We are not required to file a report on the following types of transactions:
>
> 1. Cash paid out as winnings in any amount is not reportable by name. (As in the past, certain slot, keno and race/sports winnings do not fall under this exception.)
> 2. Purchase of chips on credit.
> 3. Checks deposited for safekeeping or front money.
> 4. Payments of markers by checks.
> 5. Payments of markers with chips.
> 6. Payments of markers with safekeeping or front money receipts.
> 7. Chips deposited for safekeeping or front money.
> 8. Checks issued in payment of winnings.

Aggregation of Transactions

Regulation 6A.070 requires casinos to take reasonable steps to prevent the circumvention of the provisions of 6A as a result of patrons using multiple transactions. The regulation calls for the aggregation of all transactions within a 24-hour period of any amounts over $2,500 occurring at all gaming tables, pits, or cashier cages. This means that the cashier cages and the pit areas must keep a log of all transactions over $2,500 with descriptions of the individuals who are involved in such transactions. When these transactions exceed the $10,000 threshold, the casino is then expected to obtain the patron's name and social security number and file a cash transaction report (CTR). Such a rule places a substantial burden on the cashier or pit supervisor to keep track of individuals and their play. While this appears to place new responsibilities on the pit supervisors and floor supervisors, in fact it only formalizes one of their prior responsibilities.

One of the functions of a pit supervisor is to track the patrons at the gaming tables. This means that the pit supervisor evaluates the play of each of the patrons by analyzing the amount of money bet each play, the buy-ins and cash outs, wins and losses. The pit supervisor also determines whether players are being bankrolled by other players. This function was initially implemented many years ago as a good public relations role. The idea was that if the casino had players willing to play large sums of money, the casino would provide various complimentary services such as dinners or rooms as an enticement for these players to return. The implementation of Regulation 6A formalized what had previously been an informal system of tracking customers by now requiring that of all transactions over $2,500 be logged.

The aggregation of transactions within a 24-hour period still presents many problems for the casinos. As previously mentioned, the report to be filed is based on whether the transactions represent winnings or just exchanges. Several examples may more clearly provide evidence of the difficulties of complying with the new rules. These examples are taken from the Gaming Control Board's letters to the casinos on commonly asked questions about Regulation 6A.

Example A:

While Regulation 6A specifically states that a log must be kept of any transactions over $2,500, what happens when a patron is buying in at a table with $1,000 at a time? The Gaming Control Board answered this question by saying that no log or CTR (040) need be made unless the pit supervisor has actual knowledge that the series of smaller transactions exceed the $10,000 threshold.

Example B:

Suppose a patron places a $5,500 bet (whether in cash, on credit, or against front money) at a sports book, wins $5,000, and receives a cash payout of $10,500. Within a 24-hour period, the same patron places another bet for $5,500, again wins $5,000, and receives another cash payout of $10,500. What reports must be completed? The information reported is a function of the amount of cash involved. First of all, if either bet is made with cash, it must be logged because it is over $2,500. If both bets are made with cash, they must be logged and then a CTR (030) with proper identification must be completed. This should be done before the casino accepts the second bet. Note that if neither transaction was for cash, no report would have to be filed because even though there is a cash payout of $10,500 each time, $5,000 represents winnings which do not have to be reported in a CTR. The wagers individually do not exceed $10,000, therefore an incidence report (050) on winnings need not be reported.

Example C:

Suppose a patron redeems $5,500 worth of chips for cash. Within a 24-hour period, the same patron redeems another $5,500 worth of chips for cash. The report to be filed again depends on the nature of each of the transactions. If the cashier calls the pit and finds that both transactions consist of chips substantially all of which were either wagered or won at gaming, each individual transaction would be logged in the cashier's log and because the aggregation of the two exceeds the $10,000 threshold, a currency incidence report (050) will be completed. If the pit only confirms the first transaction as winnings but not the second, no report would be completed and the second transaction would be logged as one not qualified under 050. If the patron later redeems another $5,500 in chips, the teller would have to complete a CTR (030) for $11,000 if that also proves to be non-confirmable by the pit.

Example D:

Casinos must always watch for patrons who are trying to evade the reporting requirements by having others exchange money for them. If a pit supervisor sees that Patrons A and B each give Patron C $12,000 in cash which Patron C combines with his own $12,000 and asks to exchange the $36,000 cash for chips at a crap table, the pit supervisor should request that the patrons buy their chips separately. Whether or not the patrons comply with the request, the pit supervisor should ask for identification of each of the patrons and file a CTR (030) on each of them. If the patrons will not cooperate, the exchange should not be completed.

Example E:

On the other hand, suppose a pit supervisor sees Patron A and B each give C about $4,000 in cash which Patron C combines with his $4,000 to exchange for $12,000 in chips. In this case, Patrons A and B are not evading any reporting requirements since their individual buy-ins are for less than $10,000. The pit supervisor must still file a CTR (030) for Patron C and should also log the purchases for A and B because they exceed $2,500. Thus, if other transactions of the same type by either A or B bring either's total to over $10,000 then the pit supervisor needs to obtain proper identification of the person and file a CTR.

Defining Winnings

Regulation 6A.050 requires a currency transaction incidence report for payoffs of winning wagers over $10,000. But this section of the regulation also includes the statement that a CTR might be required if the payoff represents one of a series of wagers on which the patrons incurred no significant risk of loss. The inclusion of this statement is designed to prevent the laundering of money by making bets that have no risk. Again, actual examples might clarify this.

Example F:

Take a sports better who bets both sides of the line. This means that if the Lakers are playing the Celtics, the player bets $11,000 on the Lakers and another $11,000 on the Celtics. No matter what the line is, the worst the better can do is lose one of the bets. If the book pays 11 to 10, the better will get back $21,000 of the $22,000 that was bet, thereby laundering money for the price of a small commission (less than 5 percent).

If a casino has reason to believe a better is doing this, the casino must report the payout pursuant to .040 CTR.

Example G:

Suppose a patron deposits $20,000 in cash, wins $18,000 after a series of wagers and withdraws the $38,000 in cash. What reports must be filed? The answer is a function of the risk associated with the wagering. For example, if the patron makes eighteen bets of $1,000 each, awaiting the outcome of each bet before placing the next, and wins everyone of them, the patron has risked only $1,000 of the amount deposited. Thus, even though winnings exceed $10,000 when aggregated, only $1,000 was put at risk and therefore the payout does not qualify as an CTR (050) transaction but must be reported as a CTR (040) transaction. The transaction is plainly a withdrawal of deposit to the extent of $19,000 ($20,000-$1,000 placed at risk). It appears that the casino must file two CTR's: one as a $19,000 withdrawal of a deposit under 040, and the other as an $19,000 "other disbursement" under 040.

Example H:

Suppose a patron deposits $20,000 in cash but wagers the full $20,000 and after a series of bets wins $50,000. In this case, the repayment of the $20,000 deposited is not a withdrawal of a deposit but a payout of winnings and therefore need only be reported as a 050 transaction.

The above transactions provide evidence of the problems in tracking cash transactions in order to comply with Regulation 6A and the Bank Secrecy Act. The creation of accounting and administrative controls along with internal and external compliance testing procedures have made employees of casinos more aware of money laundering techniques.

Accounting and Administrative Controls

Compliance with Regulation 6A includes many of the accounting and administrative procedures that have already been implemented in casinos to prevent theft of the casinos' most important asset, cash. But Regulation 6A still provides many circumstances that prevent the casinos from accepting cash which they would have accepted in the past.

Exchanges of Cash

Casinos cannot accept a direct exchange of cash for cash under Regulation 6A. That is, an individual cannot exchange $5,000 of $20 bills for the equivalent in $100 bills. The alternative approach is to exchange the money for chips and then later on, return the chips or either a check or larger denomination bills. As previously noted, Regulation 6A provides several techniques to prevent such attempts.

Controls in Gaming

Pit Area

Several procedures are taken by pit supervisors when they take over new shifts. These include counting the chips at each table and being briefed on each of the major players at each of the tables. They also check the pit log to familiarize themselves with any players who have accumulated any transactions over $2,500. These procedures help in achieving compliance with Regulation 6A because part of the pit supervisor's duty also includes informally talking with any large money players and obtaining their names so that the casino can comply with the $2,500 rule. Large money players usually means any players that are betting more than $100 at a time or who have accumulated or lost more than $500. The definition of a large money player will obviously be a function of the size of the casino and the gaming limits in each pit but at the same time, the new regulations will lower the definition for most casinos.

One of the vital control techniques that exists in the casino area is the close coordination between the pit area and the cashier area. The pit supervisor, in the endeavor to track individual patrons, maintains contact with the cashier in order to determine whether the client has obtained any credit or to determine where the client obtained the cash or chips that are being played. In any attempt to comply with Regulation 6A, the cashier also needs information on individuals who cash out at the cashier's cage. As a result of the need for close coordination of these two areas, many of the casinos have now installed computer terminals in the pit area which allows direct input to the cashier's terminal.

Other Casino Areas

The cashier's cage represents another area where a substantial amount of cash exchanges hands. Keeping in mind that the regulations do not allow the exchange of cash for cash or a check, any receipt of cash in excess of $2,500 must be logged in the cashier's log. The money that has either been presented as a deposit for gaming or safekeeping must be kept separate and then when the patron finishes his play or visit, the exact amount, less any expenditures, will be returned.

The second alternative to keeping the money segregated is to record the denominations and the number of bills of each denomination of the cash delivered, and for all full and partial returns, return to the patron only cash of the same denominations and no more than the same number of bills of each denomination as was delivered.

The sports betting department also maintains similar controls over any cash it receives from patrons as those maintained by the cashier's cage. That is, they must segregate all cash transactions over $2,500 and file similar reports as the pit when dealing with payout of winnings.

Other Controls

The most effective means to assure compliance is to provide proper training for all the employees directly associated with receipts and payout. This should not only include the cashiers and pit supervisors but all the dealers as well. The inclusion of the dealers in the training sessions makes them more aware of what the pit supervisor is looking for and thus the dealer is more likely to notify the pit supervisor on those busy nights when the pit supervisor is observing another table. The management at Bally's has gone so far as to create tests which their employees must pass in an effort to make their employees more aware of the seriousness of compliance with Regulation 6A.

Effectiveness of Regulation 6A

Regulation 6A took several years to develop and to put into effect. The actual creation of the specific controls and procedures to prevent money laundering has placed a substantial amount of the burden of compliance on the casino floor employees and the accounting department. Will these rules and regulations prevent money laundering in casinos? Discussions with accounting executives and casino floor managers appear to indicate that these regulations will not prevent money laundering from continuing but that these rules will make the cost of money laundering rise substantially.

The general feeling is that persons involved in illegal activity need ways to launder money and that these individuals will try to circumvent any rules that are enacted. Laundering money in the casinos means keeping transactions under $2,500. In reality, individuals can still have transactions over $2,500 as long as they do not go over the $10,000 limit. This is because, at the present time, any transaction over $2,500 only requires a description of the individual involved. Positive identification is not required until the $10,000 limit is reached. It might also be obvious that if individuals want to launder money in the casinos, the most effective way to achieve this goal is to wait until the casino has a very large crowd which can provide cover from the screening of pit supervisors. This is exactly the type of transaction that the new Money Laundering Act of 1986 was created to prevent.

Accountants like to view the effectiveness of programs in terms of the cost and benefits. Unfortunately, while costs may be easily defined, the benefits are social benefits which are typically hard to quantify. Thus, while Regulation 6A and the new Money Laundering Control Act of 1986 may provide teeth for prosecuting violators of the rules and regulations, the casinos are caught in a no-win situation where they can be prosecuted for non-compliance if they do not incur the costs involved in creating controls to catch money laundering scams.

Notes

[1] U.S. Congress,"Anti-Drug Abuse Act", PL99-570, Oct. 27, 1986.

[2] U.S. Congress,"The Bank Records and Foreign Transaction Act", PL 91-508, Oct. 26, 1970.

[3] U.S. Congress, Committee on Banking, Finance and Urban Affairs, Report 99-746, Aug. 5, 1986, p.15.

[4] Treasury Department,"Financial Record Keeping and Reporting of Currency and Foreign Transactions", 31CRF.103.

[5] Ibid. Report 99-746, p.16

[6] Ibid. p.16

[7] Ibid. PL 91-508.

[8] Federal Register, Notice of Withdrawal of Reporting Exemptions for Casinos, filed with the *Federal Register* on Aug. 15, 1988. CCH 6107.

[9] Treasury Department."Income Taxes; Returns Relating to Cash Payments in Excess of $10,000 Received in Trade or Business", 26 CFR Parts 1 and 602.

[10] *Nevada, Regulation 6A,* Nevada Gaming Commission, 1985.

The Effects of Quality Characteristics and Marketing Services on Nevada Alfalfa Hay Prices

*by Jolie B. Pardew**

Introduction

Alfalfa is Nevada's largest cash crop, accounting for 76 percent of the value on all crops harvested in 1985 (Nevada Agricultural Statistics, 1986). Since the 1970's, Nevada's alfalfa has successfully competed in the California hay market, and more recently Nevada alfalfa has been exported to Japan and other Pacific Rim Counties. Following the late 1960's, off-farm sales of alfalfa hay increased dramatically. During the 1950's and 1960's, 20 percent of all hay was sold off-farm while, a 1980's survey found that 68 percent of the alfalfa hay was sold off the farm that produced it (Gray and Rosenburg, 1961). Because so much alfalfa is produced for sale, rather than for the grower's own use, even small adjustments in the marketing process can impact revenues to Nevada producers dramatically.

The high ratio of volume to the price per unit of hay has traditionally been regarded as an impediment to selling alfalfa hay any large distance from where it was produced (Marten, 1984). Because the ratio of alfalfa prices to transportation costs has been quite low, users of hay have generally found it cheaper to buy or produce hay locally than pay transportation costs for imports. This has not been true for Nevada alfalfa hay, because of its reputation for superior quality, specifically high protein content and low rates of spoilage (Vogel, 1986). Because this high quality is crucial to the continued export sales of Nevada alfalfa hay, the relationship between hay price and quality is of particular importance to Nevada.

The alfalfa market is competitive in the western states. Hence, market price for hay is the result of the costs to all producers growing hay (supply) inter-acting with the value of hay to the buyers who use it to produce other goods such as beef and mile (demand). A 1980 survey of Nevada alfalfa producers reveals that instead of a single market price per ton for a given time and location, price per ton varied from $55 to $102. A possible explanation is that alfalfa hay prices vary with differences in hay quality, marketing services, and terms of sale.

This exploratory study is intended as an initial step towards identifying the relationship between alfalfa hay prices and some characteristics of alfalfa hay transactions.[1] This paper tests the hypothesis that available measures of terms of sale, marketing services, and physical quality are significant sources of variation in alfalfa hay prices. From the Nevada producer's standpoint, the effects of these factors and their relative importance on hay prices is potentially useful in the process of designing a product that will earn the most profit under a given set of market conditions. Information about the relationship between price and variables measuring alfalfa hay qualities could be used in making expenditure decisions about alfalfa hay quality improvements. Information concerning relationships between terms of sale, marketing services, and price should help producers select the type and level of marketing services which are most profitable.

Relationships between product price and product characteristics are difficult, if not impossible, to observe directly. This difficulty occurs because a given transaction's terms of sale, associated marketing services, and quality characteristics are exchanged together as part of a product bundle. Fortunately, the contribution to a product's market price from individual product characteristics can be estimated using a method known as the hedonic approach (Rosen, 1974).

Methodology

The hedonic approach conceptualizes a product, Z, as a bundle of n objectively measured characteristics, Z_i. For example, with the hedonic approach, a package of steak, Z, at the local market is conceptualized as a bundle of protein, Z_1, calories, Z_2, taste and aesthetic variables, Z_3, meat cutting services, Z_4, and packaging, Z_5. The price of a product, steak, $P(Z)$, is assumed to be a function of the prices of the individual characteristics, that is: $P(Z) = f(Z_1, ..., Z_n)$. A hedonic function is estimated by regressing product price on quantities of measurable product characteristics. For a linear function, each estimated coefficient indicates how price changes with a one-unit change in the corresponding product characteristic. Thus, each regression coefficient from a linear hedonic function may be interpreted as the competitive market price per additional unit of a commodity's characteristic.[2] By estimating the hedonic function, the contribution to market value of product quality related variables and marketing services which are not sold as separate goods can be determined.

The hedonic technique was developed by Griliches (1971) and others in order to remove quality changes from time series price indexes. More recently, Lucas (1975) and Rosen (1974) have provided the theoretical construct currently used in hedonic modeling. Applications of the hedonic approach in agricultural economics include barley (Wilson, 1984), rice

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(Brorsen, Grant and Rister, 1984), and tomatoes (Jordon, et. al., 1985).

In the following section of this paper, the data and study area are described. Then regression estimations are used to test the hypothesis that variables associated with differences in terms of sale, marketing services offered, and physical quality are significant predictors of alfalfa hay prices at a given time and location. Finally, regression results are interpreted within a hedonic approach.

Data and Study Area

Data for the study was obtained from a 1980 personal interview survey of selected Nevada alfalfa hay producers. Producers were sampled in four northern Nevada counties. The four counties - Humboldt, Churchill, Lyon, and Eureka - account for 53 percent of all the alfalfa grown in Nevada (Census, 1980). Owners of 40 acres or more of agricultural land were identified from county tax records. A random sample of agricultural land owners was initially made, and each selected land owner was contacted by telephone to identify those land owners who were also alfalfa producers. The sample of Nevada alfalfa producers was stratified so that the proportion of producers from each county in the survey corresponded to the proportion of producers in each county to the total number of producers reported by the 1989 Census of Agriculture. Onsite interviews were conducted with 111 producers from the four counties. The data included 169 sales reported by 88 alfalfa producers who sold hay.

The four counties in the study area are similar with respect to climate and cultivation practices employed but vary with respect to the levels and mix of agricultural activities. Lyon and Churchill Counties are nearest the large concentrations of buyers in California. Humboldt and Churchill County farms raise the most beef cattle, while Churchill and Lyon County farms raise the most dairy cattle (State of Nevada, 1986). Eureka County is the farthest from California of the counties sampled and has the fewest beef and dairy cows. These data suggest that the combined cattle, dairy, and out-of-state demands for hay will be largest in Churchill County and smallest in Eureka County. Selected statistics on agricultural activities in the four counties are presented in Table 1.

Empirical Model

Alfalfa hay price per ton is hypothesized to be a function of factors associated with variation in terms of sale, marketing services, and physical quality. The categories "terms of sale," "marketing services," and "physical quality" are intended as convenient labels for groups of variables. Economic theory does not provide specific theoretical guidance for selecting or categorizing variables in a hedonic function. Economic theory, similar studies and observations of local alfalfa marketing provide general guidelines to variable selection. The final specification of the equation is dictated by the availability and statistical significance of each variable. Descriptions of individual variables are summarized in Table 2.

Table 1

Description of agricultural activity in the four Nevada counties included in sample of Nevada alfalfa producers in Churchill, Eureka, Lyon, and Humboldt Counties in 1978.

	State of Nevada	Churchill	Lyon	Eureka	Humboldt
Total Area[1] (100's acres)	70,745.6	3,144.3	1,295.3	2,767.5	6210.6
Est. Avg. Length of Growing Season[1] (days)	---	132	107	96	116
Avg. Farm Size[2] (Acres)	3,641	729	881	3,587	5,671
Area in Alfalfa[2] (Acres)	253,110	30,692	38,804	18,480	38,454
Beef Cows[2]	290,270	14,439	20,463	16,921	33,668
Dairy Cows[2]	13,950	3,776	1,003	43	94
Market Value of Agricultural Products[2]	202,122	23,234	20,076	7,653	36,936

NOTES:

1. State of Nevada. Office of Community Services, *Nevada Statistical Abstract 1983-1984*, Carson City, NV, 1984.
2. U.S. Bureau of Census. *1978 Census of Agriculture: Nevada State and County Data*, Vol. 1, Part 28. Washington, D.C., 1980.

Variables "GAP" and "AGREE DATE" are used to capture terms of sale effects. Increased time between initial agreement and final payment (GAP) is expected to result in higher prices. If a seller delivers hay before payment is made in full the seller is extending credit. This represents two factors related to the seller's cost. First, the seller loses interest earnings on the money owed. Second, the seller incurs the risk of non-payment. Both of these factors are expected to increase the price the seller receives and the price the buyer is willing to pay. The variable GAP was included as a squared term in the hedonic function. The squared term allows the effect of GAP to increase as the gap between agreement and payment expands. This increase is the expected result of interest on foregone earnings, compounding over time.

The date of agreement (AGREE DATE) is the date upon which buyer and seller initially agree upon a sale. The date of agreement is expected to significantly affect price but the direction of the effect is uncertain. The variable AGREE DATE reflects both quality and amount of risk accepted by the producer. Very early dates of agreement tend to be made between sellers and buyers who have done business in previous years. Familiarity implies the buyer will have more knowledge of the seller's production practices and past performance and, therefore, the hay's quality. It follows that the earliest buyers can be expected to claim the highest quality

Table 2
Explanatory variables of the price per ton of Nevada alfalfa hay

VARIABLE NAME	PREDICTED SIGN	DESCRIPTION
PRICE		Price per ton of alfalfa hay received by the seller
$(GAP)^2$	+	Number of days between the initial and the last payment on hay, squared
$(AGREE\ DATE)^2$	-	Date of initial agreement between buyer and seller: June 1 = 0, May 1 = -30, July 1 = 31, ..., squared
FORM OF HAY		
CUBE	+	A binary variable that equals 1 if alfalfa has been processed into cubes
CHOP	-	A binary variable that equals 1 if alfalfa has been processed into green chop haylage or dry chop
BALE		Base variable, if CUBE = 0 and CHOP = 0, then hay was baled
DELIVERY COST	+	Transportation costs in dollars per ton paid by seller
COOP	+	A binary variable that equals 1 if alfalfa sold through a producer cooperative
TONS SOLD	+	Number of tons of alfalfa included in sale
COUNTY OF ORIGIN		
CHURCHILL	+	A binary variable that equals 1 if a producer located in Churchill County
HUMBOLDT	+	A binary variable that equals 1 if a producer located in Humboldt County
LYON	+	A binary variable that equals 1 if producer located in Lyon County
EUREKA		Base variable, if CHU = 0, HUM = 0, and LYON = 0 then producer located in Eureka County
2ND CUTTING	-	Percent of sale by weight consisting of second cutting hay
DAIRY USE	+	A binary variable that equals 1 if alfalfa sold to a dairy producer
DATE 1ST CUT	-	Date the first cutting started: June 1 = 0, May 1 = -30, July 1 = 31, ...
RAIN DAMAGE	-	A binary variable that equals 1 if any alfalfa included in the sale was rain damaged

hay, ceteris paribus. Therefore, earlier dates of agreement should be associated with higher quality and higher prices. Alternatively, in most markets buyers who order earlier and take delivery may be expected, on average, to pay lower prices because earlier orders reduce the producer's market risk. A major marketing problem reported by Nevada hay producers is failure to receive payment for delivered hay. The seller should be willing to accept less money from a familiar buyer if he/she expected a higher probability of receiving full payment than from alternative unfamiliar buyers. This would result in a negative coefficient for AGREE DATA. The variable AGREE DATE was included as a squared term in the hedonic function.

Variables included to describe marketing services are, CUBE, CHOP, COST DELIVERY, COOP, and TONS SOLD. Hay growers surveyed revealed hay was processed in three ways: baled, cubed, and chopped. The coefficient for CUBE (cube versus baled) is expected to be positive. Compared to baling hay, cubing hay increases cost and reduces the moisture content and volume. Increasing the ration of value to volume, reduces transportation costs per ton and expands the potential marketing area. Cubed hay is expected to have a higher price per ton than baled hay.

The coefficient for CHOP (chopped versus baled) is expected to be negative for the following reasons: (1) chopping is less costly per unit of weight harvested; (2) the off-farm market for chopped alfalfa is relatively more limited, given the higher cost per unit weight per mile; and (3) for chopped sales included in the sample, most buyers purchase hay "in the field" and bear the cost of harvesting. All of these factors should reduce the market price for chopped alfalfa.

The variable COST DELIVERY is the transportation cost per ton to sellers of moving hay from origin to destination. If the seller pays the transportation cost, then the sales price reported by the seller is expected to be higher. The coefficient for COST DELIVERY is expected to be positive.

Hay grower cooperatives operate in two of the four counties surveyed: Lyon and Eureka Counties. Nevada hay grower cooperatives claim to increase the market prices received by their members. Cooperatives provide chemical testing of hay and current price information. Cooperatives also provide labor to arrange sales of the quality hay in the quantities buyers find most desirable. Also, the cooperatives insure sellers against non-payment by maintaining a revolving fund out of which producers are paid when buyers do not pay for their purchases. The cooperatives charge a marketing fee that averages $1 per ton plus three percent of total revenues for the revolving fund. Because of the fees and the additional marketing services provided, the coefficient for COOP is expected to be positive.

The fifth marketing variable is tons of hay in each sale (TONS SOLD). If there are economies of size for sellers, then larger quantity sales will lower price per unit of weight. If there are diseconomies for sellers then the price per unit of weight will increase with larger sales, ceteris paribus. If the coefficient is not significantly different from zero, this would support the hypothesis that neither economies nor diseconomies are present.

Origin of the hay is expected to act as a proxy for a number of unmeasured variables. The hay grower's location is described by dummy variables, CHURCHILL, HUMBOLDT, and LYON. Eureka County is used as the base county. As noted previously, Eureka has the smallest local market for alfalfa hay and is farthest from the primary markets in California. Transportation costs borne by the buyer are expected to be a major component of the effect of hay's origin. Transportation costs are, on average, highest for buyers of Eureka hay versus Churchill, Lyon, and Humboldt Counties. The prices buyers are willing to pay for hay from Churchill, Lyon, and Humboldt counties are, therefore, expected to be higher than Eureka. The coefficients for CHURCHILL, HUMBOLDT, and LYON are all expected to be positive.

The price of hay is hypothesized to be positively affected by hay quality, primarily digestible protein content. Four variables included as indirect measures of hay quality are 2ND CUTTING, DAIRY USE, 1ST CUT DATE, and RAIN DAMAGE. The variables RAIN DAMAGE, 1ST CUT DATE, and 2ND CUTTING are indicators of protein content buyers may use in the absence of chemical testing. The variable 2ND CUTTING measures the percent of second cutting hay included in a sale. The majority of alfalfa producers surveyed reported harvesting three crops, or cuttings, per season. The second cutting is regarded as the poorest quality because it grows faster and accumulates less protein per unit of weight than first or third cuttings. The expectation is that larger percentages of second cutting hay included in a sale will lower price per unit of weight, therefore, coefficient for 2ND CUTTING is expected to be negative.

Alfalfa harvested when it is less mature has more digestible nutrients per unit of dry weight than hay which is allowed to mature. Earlier first cutting dates are expected to be associated with less mature and therefore higher quality alfalfa. The variable 1ST CUT DATE is the date of the first cutting. The coefficient for 1ST CUT DATE is expected to be negative.

After alfalfa is cut, the hay is left in the field to dry for several days before baling. If the hay is rained on when it is drying, deterioration is likely to occur. The variable RAIN DAMAGE equals one if the hay has been damaged by rainfall and zero if otherwise. The coefficient for damage is expected to be negative.

The alfalfa producers surveyed sold alfalfa primarily to dairies, beef cattle operations, and feed stores who resold most of their hay to horse owners. All buyers compete in a single market for hay and its component characteristics. The type of buyer placing the highest value on a particular characteristic will buy units of hay with the largest quantities of that characteristic. Previous research indicated dairy operators can increase profits by feeding hay with higher protein content (Bath, 1974). Thus, dairy producers are expected to purchase hay with the highest protein content. Beef cattle producers and horse owners are expected to purchase hay with a relatively lower protein content. Weeds included in alfalfa hay not only reduce protein content, but introduce unwelcome tastes into milk when fed to dairy cows. For these reasons, hay sold to dairy producers, versus all other buyers (DAIRY USE) was used as a proxy variable for high protein content and less weeds. Therefore, the coefficient for DAIRY USE is expected to be positive.

Results

Results from this study are reported in Table 3. The R^2 indicates more than half the total variation is explained by the independent variables. The regression equation is significant at the .001 level. All parameters except TONS SOLD are significant at the .10 level and signs are as predicted.

The two variables describing the terms of sale were significant at .05 level or better. From the mean value of GAP, 47 days, an additional 30 days between the initial agreement and the last payment adds \$.34 per ton to the market price. A one-year delay adds \$12.26 to the sample mean price of \$88.19, suggesting a 13.9 percent mark-up for a one-year payment schedule.

All but one of the marketing service variables were significant at the .01 level. Cubed hay sells for \$25.34 more than baled hay. Chopped hay sells for \$34.34 less than baled hay. Such findings suggest that at 1980 costs, a producer could spend 29 percent more per ton on cubing than baling. Estimation results are consistent with the hypothesis that each dollar spent on transportation costs by the producer contributes less than a dollar to product price. Confidence intervals constructed around the coefficient COST DELIVERY do not contain \$1.00 at the .05 alpha level. Hay marketed through cooperatives earned approximately five percent more per ton than hay sold through other marketing channels 424 tons, this represents an increase in total revenue of \$1,885 associated with cooperative membership.

The variable TONS SOLD was not retained in the regression equation. The coefficient for the variable TONS SOLD was not significantly different from zero at the .78 alpha level. This supports the hypothesis that economies or diseconomies of scale were not present.

Hay grown in Churchill, Lyon, and Humboldt Counties sold for significantly higher market prices than the base county Eureka. T-tests support the hypotheses that prices received in Humboldt, Churchill, and Lyon Counties were not significantly different from each other.

Four measures of quality were significant at the .05 level or better. Results indicate that a sale consisting of only second cutting hay sold for nine percent less a ton than sales of first or third cutting hay. Hay sold to dairies sold for three percent more a ton than hay sold for other uses. The coefficient for 1ST CUT DATE indicates that each additional 10 days first cutting hay is allowed to mature will reduce market price per ton by three percent. The coefficient for RAIN DAMAGE suggests that rain damage will reduce market price per ton by five percent.

Factor analysis is a technique which groups variables according to their common variability. Results of factor analysis,

Table 3
Results of hedonic price function estimation for alfalfa prices received by Nevada producers in 1980.

Variable	Coefficient	Standard Error	F Ratio
$(GAP)^2$	.000092***	.000031	(0.11384)
$(AGREE\ DATE)^2$	-.000085^{+}	.000025	(14.22208)
CUBE	25.3412***	10.0408	(6.36968)
CHOP	-34.3390***	7.17240	(22.0493)
DELIVERY COST	.80943***	.101480	(63.62052)
COOP	4.44702*	2.304378	(3.72416)
2ND CUTTING	-.084286***	.-22117	(14.5228)
DAIRY USE	2.87907**	1.77202	(2.63977)
DATE 1ST CUT	-.266457	.121103	(4.84111)
RAIN DAMAGE	-4.26394**	2.49167	(2.92848)
CHURCHILL	1.4023***	2.32892	(49.6024)
HUMBOLDT	14.3700***	2.73174	(27.6716)
LYON	13.3565***	2.61498	(26.0493)
Intercept	78.3202***	2.73173	(1020.51)

df (13,155) Adj. $R^2 = .500$ F = 13.91

NOTE:
* significant at the .10 level one tailed test
** significant at the .05 level one tailed test
*** significant at the .01 level one tailed test
$^{+}$ significant at the .01 level two tailed test

reported in Appendix 1, reveal that some of the variables tested did not load into a single factor. Those variables loading into more than one factor may be expected to measure more than one theoretical dimension of the total variability in the model (Kim, 1975). For example, the variable (AGREE DATE) loads into factor 4 with the measure of hay quality and into Factor 6 with another term of sale measure $(GAP)^2$ and EUREKA. The variables measuring county of origin load into factors measuring quality, terms of sale, and marketing services. This result supports the hypothesis county of origin is acting as a proxy for a variety of unmeasured variables. The three processing alternatives CUBE, BALE, and CHOP load into a single factor indicating that all three measure the same source of variability.

The fourth factor groups 2ND CUTTING, DAIRY USE, DATE 1ST CUT, and AGREE DATE, indicating these four variables are capturing the same source of variability, possibly hay quality. The other factors suggest more ambiguous groupings. The second factor groups cooperative membership with hay origin in Lyon and Churchill Counties. The third factor groups rain damage and Humboldt County together; while the sixth factor groups GAP, AGREE DATE, and EUREKA together. These groupings do not correspond with the original three categories physical quality, terms of sale, and marketing services.

Correlation coefficients (see Table 2 of Appendix 1) indicate a relatively low degree of simple linear correlation between variables. This, combined with the results of the factor analysis, suggests that advantages of using factors derived from factor analysis in place of untransformed independent variables may not justify the resulting loss of information.

Conclusions

This paper estimates the contribution to Nevada alfalfa hay sales of variables describing terms of sale, marketing services, and physical quality. The data was obtained from a 1980 survey of alfalfa producers.

Fifty percent of the total variation in Nevada alfalfa hay prices is explained by fourteen variables. Factors associated with higher protein content and more digestible matter per unit of weight have statistically significant positive effects on prices relative to baling. Each additional ten days that first cutting alfalfa hay is allowed to mature reduces market prices by three percent per ton (.907 metric ton). Estimates suggest that cubing increases market prices relative to baling; while chopping decreases market prices relative to baling. Each dollar that producers spend transporting hay returns less than one dollar. Membership in hay grower cooperatives was also found to positively affect prices received. Finally, variations in terms of sale were statistically significant predictors of sales prices. Longer gaps between initial agreement and final payment were associated with increased prices.

A number of study limitations may reduce the validity of some results reported. Interdependence between explanatory variables will cause the effects estimated by regression to vary with the sample drawn and the variables included in the regression. Additionally, interactions between the effects of hay characteristics are not measured by a linear regression. Finally, potentially important explanatory variables were possibly omitted and their effects were attributed instead to variables included.

Results of this study suggest that useful information to Nevada alfalfa market participants is available from the hedonic approach. Further research in this area has potential for producing additional useful insights.

Notes

[1] Some issues currently being examined in the hedonic literature are deliberately not examined in this article. This study is of an introductory nature emphasizing fundamental aspects of the hedonic approach. For example, interactions between variables and non-linearities in the hedonic equation have been dealt with using Box-Cox flexible functional form transformations. Jordan et al (1985), Pardew (1986).

[2] For non-linear functional forms (e.g., Box-Cox transformation), the competitive market prices per additional unit of the products' characteristic may be estimated using partial differentiation (Pardew, Shane and Yanagida, 1986).

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APPENDIX A

Table 1
Equimax Rotated Factor Matrix of Principal Factors After Rotation with Kaiser Nomalization.

	FACTOR 1 CUBE CHOP BALE	FACTOR 2 COOP CHURCHILL LYON	FACTOR 3 DATE 1ST CUT RAIN DAMAGE HUMBOLDT	FACTOR 4 2ND CUTTING DAIRY USE DATE 1ST CUT (AGREE DATE)^2	FACTOR 5 DELIVERY COST CHURCHILL EUREKA	FACTOR 6 (GAP)^2 (AGREE DATE)^2 EUREKA
2ND CUTTING	.04748	.07896	.06597	.76543*	.07755	.03346
(GAP)^2	.18540	-.12178	.09564	-.08725	-.09514	.82225*
COOP	-.00429	.74759*	.23363	.03509	-.07596	-.24194
CUBE	.84492*	-.01123	.00797	-.05699	-.01726	.15901
CHOP	.95972	-.07498	-.05490	.03607	-.03838	.02637
BALE	-.05972*	.07498	.05490	-.03607	.03838	-.02637
DELIVERY COST	.02679	-.07832	-.01336	-.00840	.77320*	-.25290
DAIRY USE	-.07052	-.13565	-.15590	-.64321*	-.21299	.24288
DATE 1ST CUT	.15873	.11598	.40609*	-.61706*	.14917	-.10488
RAIN DAMAGE	-.07571	.02715	.65942*	.19433	-.28210	.12414
CHURCHILL	.19897	-.65731	-.28848	-.08629	-.49496*	-.25389
LYON	-.05731	.86334*	-.33254	-.01630	-.17286	-.04967
HUMBOLDT	-.04277	.02161	.87601*	-.01696	.08616	-.06472

Appendix A

Table 2
Pearson's Correlation Coefficients Between Independent Variables

	$(GAP)^2$	$(AGREE DATE)^2$	CUBE	CHOP	DELIV. COST	COOP	TONS SOLD	CHURCHILL	HUMBOLDT	LYON	2ND CUT	DAIRY USE	DATE 1ST CUT	RAIN DAMAGE
$(GAP)^2$	1.00													
$(AGREE DATE)^2$	-.20	1.00												
CUBE	.26	-.07	1.00											
CHOP	.17	.00	.70	1.00										
DELIVERY COST	-.13	-.10	-.04	-.03	1.00									
COOP	-.20	-.05	-.06	-.08	-.02	1.00								
TONS SOLD	.60	-.11	-.02	-.01	-.05	-.12	1.00							
CHURCHILL	.03	.04	.16	.22	-.20	-.36	-.09	1.00						
HUMBOLDT	.01	.13	-.06	-.08	.07	.20	-.03	-.36	1.00					
LYON	-.15	-.12	-.07	-.09	-.07	.44	-.05	-.42	-.31	1.00				
2ND CUTTING	-.07	.20	-.01	.04	.07	.05	-.02	-.12	.11	.00	1.00			
DAIRY USE	.16	-.29	.00	.00	-.15	-.18	.08	.13	.08	-.02	-.38	1.00		
DATE 1ST CUT	.04	-.13	.15	.05	.00	.11	.05	-.12	.21	-.02	-.29	.11	1.00	
RAIN DAMAGE	.05	.19	-.04	.06	-.13	.13	.09	-.09	.35	-.08	-.13	.06	.29	1.00

Southern Nevada Small Business Microcomputer Users: the Current Experience

*by John F. Schleich, William J. Corney and Warren J. Boe**

More than 99 percent of businesses in the United States fall into the classification of small business as defined by the Small Business Administration. Their importance is underscored by the fact that they employ 55 percent of the nation's work-force, produce 55 percent of all innovations and account for 38 percent of the nation's Gross National Product.

The failure rate among this business sector is enormous. One out of five fails within the first year of business and two out of three fail within seven years.

With the advent of microcomputers, the small business now has access to a tool that can provide the expertise that may be lacking in its managers. Almost any business can now enjoy the rewards associated with computerized data processing, which is both inexpensive and easy to use.

Principle benefits of computerizing a small business include: faster billing of customers, accuracy of customer statements, better inventory control, more timely reports, and more (and better) management information. By computerizing routine business functions and expanding relevant management information, small business managers can identify problems or opportunities and implement decisions on a timely basis. This allows the manager to devote more time to actual planning, organizing and controlling of business operations.

Small businesses that want to computerize are faced with a series of problems. Having little computer knowledge, the typical manager may encounter difficulty selecting the proper hardware and software. Moreover, obtaining hardware and software at a fair price, planning for proper implementation, operating the system effectively, and properly assessing its performance over time may present additional obstacles.

How the small business manager has been able to cope with this new technological tool is the focus this study.

Previous Research

Haugen (1982) surveyed 31 small businesses in the Midwest. Her findings included the following: 1) 60 percent used computers; 2) IBM was the major equipment manufacturer; 3) nearly all bought rather than leased their equipment; 4) the most common area of application was accounting; 5) consultants wrote more than one-third of programs used; and 6) BASIC was the primary language.

Delone (1983), in a field study of small manufacturing concerns in Los Angeles, attempted to find factors related to successful implementation. Two major conclusions were: 1) the success of computer operations was directly related to the knowledge and involvement of the chief executive; and 2) type of computer, its on-site location, and computer planning/controls, taken together, were positively related to success.

A study by Lees and Lees (1987) of 400 small businesses found that there was a wide variance in practices among the businesses. While some followed recommended procedures for implementation, the majority proceeded without any formal systems planning.

Baker (1987) conducted interviews at 40 small industrial firms. He concluded that while progress was being made in small business computerization, more needs to be done, including the training of high level managers. He also felt that someone in the small business organization should be appointed to oversee information system needs.

Corney and Nixon (1982) in a sample of businesses in Neveda, found that firm size had a major impact on the type of application used and that only 41 percent of small businesses used the computer for general accounting.

Finally, Newpeck and Hallbauer (1981) concluded from their research that too many small firms rely on a single outside technician to totally complete their computer system project, increasing the risk of later problems.

What has been the experience of Southern Nevada small businesses with their computer systems? The following study attempts to find some answers.

Research Methodology

A questionnaire was developed to assess the microcomputer usage experience in small businesses. Two pilot surveys were conducted to refine the instrument, and the final questionnaire was administered in the spring of 1987. The population was selected from Clark County small businesses appearing in the Nevada Directory of Business. The population was restricted to businesses with fewer than 50 employees and annual gross sales of less than 20 million dollars. From this group, 137 usable responses were obtained. Data were analyzed using the Minitab statistical program.

Results

Only 27 percent of the small businesses contacted indicated that they had microcomputers. Of those with microcom-

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puters, 54 percent were found to have fewer than 10 employees and 75 percent fewer than 20 employees. In terms of annual sales, 18 percent had sales of less than one million dollars and 52 percent had sales of less than two million.

Considering the method of microcomputer system acquisition, the major source by far (41 percent of respondents) was that of computer vendor. Seventeen percent used trade groups, 13 percent used a consultant and only nine percent used mail order for acquisition.

Brand chosen is shown in Exhibit 1. Well-recognized name brands lead the list, with IBM garnering 50 responses. Thirteen brands were mentioned between two and nine times, and 18 were mentioned only once.

System costs are documented in Exhibit 2. The majority of small businesses paid $10,000 or less for their system. It should be noted that aggregated computer cost figures can be quite misleading, as hardware and software costs have decreased dramatically as microcomputers have matured. It is also important to be aware of the fact that software costs provided by survey respondents may not reflect the retail dollar value of software in use as there is a vast network of software swapping at the microcomputer level.

The study found that more than 50 percent of respondents began using computers just within in the past two years. The point of perceived effective use was quite rapid, with 50 percent of respondents reaching this state in one month or less and 94 percent in three months or less.

Exhibit 1
Brand by Manufacturer

MANUFACTURER	NUMBER OF OWNERS
IBM	50
Leading Edge	9
KAYPRO	8
Tandy/Radio Shack	8
Apple	8
COMPAQ	7
AT&T	5
AlphaMicro	4
Wang	3
Digital Equipment	3
Hewlett-Packard	3
Basic-4	3
ITT	3
Texas Instruments	2
Multi-Tech	2
ONYX	2
NCR	2
Others (mentioned only once each)	18
TOTAL	151

Multiple responses allowed

Exhibit 2: Costs

SOFTWARE COSTS (THOUSANDS)

SOFTWARE COSTS	NUMBER OF RESPONDENTS
0	3
1	20
2	18
3	14
4	4
5	8
6	1
7	2
8	2
9	1
10	5
14	1
15	2
17	1
20	2
25	1
More than 25	5
No Response	42
TOTAL	137

HARDWARE COSTS (THOUSANDS)

HARDWARE COSTS	NUMBER OF RESPONDENTS
1	5
2	9
3	10
4	6
5	5
6	5
7	2
8	4
9	2
10	8
12	3
13	1
15	6
16	3
18	3
20	3
22	1
25	4
35	1
40	3
More than 40	12
No Response	42
TOTAL	137

TOTAL COSTS (THOUSANDS)

SYSTEM COSTS	NUMBER OF RESPONDENTS
0 to 5	24
6 to 10	27
11 to 15	17
16 to 20	14
21 to 25	7
26 to 30	6
31 to 35	1
36 to 40	7
41 to 45	4
46 to 50	2
51 to 55	3
56 to 60	4
61 to 70	4
More than 70	7
No Response	12
TOTAL	137

Exhibit 3 shows how the microcomputer systems are used. As shown, accounting and word processing dominate small business applications.

Exhibit 3
Types of Applications

TYPE OF PROGRAM	NUMBER OF RESPONSES	PERCENT
Accounting Programs		
Accounts Receivable	104	76%
General Ledger	88	64%
Accounts Payable	88	64%
Payroll	79	58%
Inventory	63	46%
Other Programs		
Word Processing	87	64%
Spreadsheet	63	46%
Database	60	44%
Budgeting	42	31%
Forecasting	33	24%
Scheduling	32	23%
Order Processing	32	23%
Graphics	24	18%
Other Types	22	16%

The level of microcomputer system training in the small businesses surveyed was found to be minimal. Thirty-eight percent of those responding indicated that no training at all was undertaken, 22 percent indicated ten hours or less, 12 percent said from 11 to 20 hours, 15 percent from 21 to 40 hours, and 13 percent said more than 40 hours of training.

As an indication of their interest and knowledge of computer systems, managers were asked the number of computer magazines to which they subscribed. More than half the managers indicated that they received no computer periodicals, and the mean number for all respondents was about one.

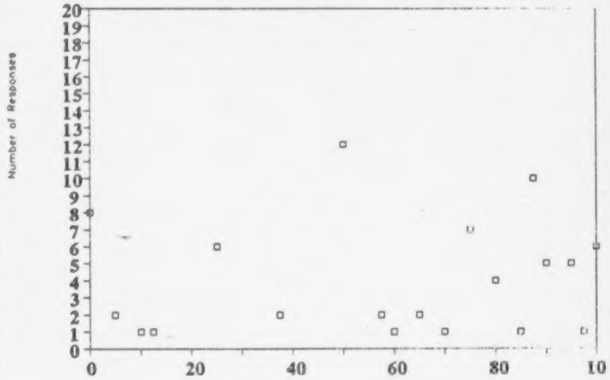
The level of computer system planning within the small businesses was also surveyed. The vast majority (73 percent) indicated that they have no plan at all or that their plan is not in writing. Of the remaining respondents, only 19 percent said that they had a well-developed written plan.

The study also attempted to measure satisfaction. Exhibit 4 provides an indication of satisfaction with the vendor, with consultants, and with the system as a whole. The scales provide a subjective range from zero (no satisfaction) to 100 (complete satisfaction). As shown, satisfaction varies widely among small business managers.

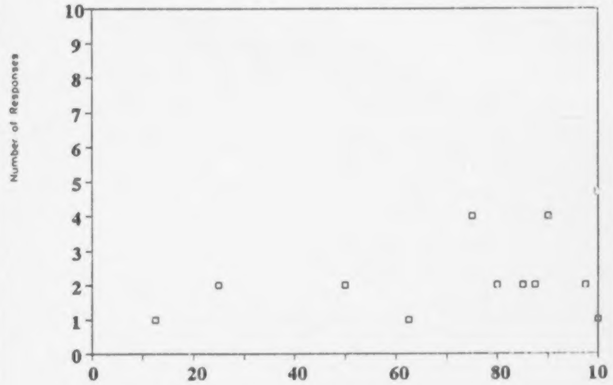
In an attempt to find factors associated with satisfaction, correlations were made between satisfaction scores and the following variables: 1) costs; 2) training; 3) planning; 4) acquisition method; and 5) knowledge of user. Positive relationships were found for system satisfaction and level of planning (r = +.383); and system satisfaction and use of vendor for acquisition (r = +.383).

Exhibit 4

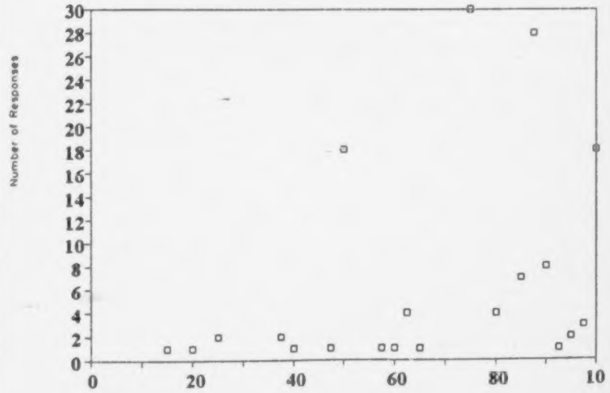
(a) Satisfaction with Vendor



(b) Satisfaction with Consultant



(c) Subjective Satisfaction



The relationship between planning and satisfaction has intuitive appeal, as the plan offers the basic mechanism for system control. The use of a vendor for acquisition is likely related to satisfaction as it provides the "hand-holding" that many small business managers need. No relationships were found for the other variables.

Conclusions and Policy Implications

What lessons can be learned from the current experience of Southern Nevada small business microcomputer users? The research effort has found at least five areas of special concern to this group: 1) extent of computer usage; 2) areas of application; 3) planning effort; 4) commitment to training; and 5) managerial expertise.

Considering first the extent of computer usage, the study found that the majority of small businesses do not use microcomputers. The usage rate of only 27 percent implies that vast opportunities in Southern Nevada exist for small businessmen to automate and improve operations, and a large potential market exists for computer vendors and other computer support organizations.

The second concern illuminated by the study involves computer applications. While small businesses with computer systems appear to be using them substantially, the major areas of application tend to be dominated by accounting and word processing. Knowledgeable use of programs that support decision making (e.g., spreadsheets, database and forecasting software) could be extremely valuable to the small business manager, but their current use is very limited. Small business managers should look beyond the obvious and "easy" applications to the more sophisticated ones. Vendors and consultants should take the initiative to promote these applications, especially to small businesses that have successfully implemented basic applications.

The third major concern is in the planning area. The almost total lack of computer system planning puts the small business manager in a poor position. Without specific objectives and a time frame, the tendency to flounder and miss opportunities increases. The finding that planning and system satisfaction are related reinforces the need for more system planning. This weakness should also be noted by consultants and vendors. Promotion of the planning function should be an integral part of their service to the small business organization.

Fourth on the list of concerns is management commitment to employee training. The finding that 38 percent of businesses provided no training at all indicates that a greater effort in this area is warranted.

Finally, managers of small businesses should recognize their lack of computer expertise as a weakness and should endeavor to improve their skills. The four previously discussed management concerns, along with the low frequency of computer periodical reading found in the study, indicate that there is considerable room for education on the part of the small business manager. Fortunately, there are many computer education options available.

Continuing education evening programs at the university and community college level provide a low-cost means to acquire expertise. Basic courses that survey hardware and software options are available as well as skill courses in operational areas. Moreover, university certificate programs are available in microcomputer operations, spreadsheet usage, wordprocessing and office computerization. These multi-course programs are structured for the non-computer oriented individual and attempt to provide a well-rounded knowledge of each subject area. Other educational options include the use of private business institutes, courses sponsored by the Small Business Administration, use of personal consultants, professional organization seminars, and self-educational materials available from vendors or local bookstores.

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A Salary Survey of CPA Firms in the Reno/Sparks Area

*by B. J. Fuller**

In the spring of 1984 the author sampled CPA firms in the Reno/Sparks area to determine salary and fringe benefits for accountants. The need for that first survey was suggested by the many requests received from local accounting firms for data on compensation. The survey is updated annually as of July 31. The 1986 updated survey presented below included a sample of sixteen local CPA firms - all of the larger ones (those with 25 or more professional staff) and a nonrandom sample of the smaller ones. All of the firms, except two of the larger firms and four of the smaller firms, responded to the request for data.

Table 1 presents salaries for professional staff from entry level to those with five years' experience. It is noted that one of the small firms and one of the larger firms offer the highest starting salary. The larger firms' average salaries are higher than the small firms'; three firms paid a premium for MBAs, and two firms paid a premium for tax personnel.

Paid holidays ranged from eight to ten days. Overtime was paid at the straight-time rate except for one firm that paid time-and-a-half.

Table 2 presents fringe benefits along with selected information on specific benefits at the ten firms. Five of the firms included dental care as part of their health insurance plan and four of the firms included optical benefits.

Professional dues paid by the firms generally included state society and AICPA membership dues. All of the firms paid all or part of the dues for other selected civic and professional organizations to which the professional members belonged.

Table 3 presents a comparison between 1986 and 1987, and Table 4, a comparison of 1985 with 1987, of average salaries for each of the experience levels. The difference between the salary averages is presented as a percentage increase or decrease which is compared to the cost of living index for the Reno/Sparks area.

Exhibit 1 is a graphic presentation of real wage increases (decreases) for the years 1985, 1986, and 1987.

Exhibit 2 is a graphic presentation of the increases and decreases of the current year over the prior for the periods ended July 31, 1987 and 1986.

The user of these data is reminded that this is a presentation of base salaries which does not include overtime or bonus pay.

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Table 1
Base Salary for Entry Level Professional Staff and the Base Salary for Currently Employed Professional Staff for Five Years Along with Other Salary Related Information

	SIX SMALL FIRMS						FOUR LARGER FIRMS			
	1	2	3	4	5	6	1	2	3	4
Salaries										
Experience in Years										
0	$19,000	$19,000	$16,800	$16,000	$18,000	$20,000	$19,200	$20,000	$19,000	$19,800
1		20,000	18,600	17,000	19,800	22,500	20,500	22,000	20,500	21,500
2		21,000	21,000	20,000	22,000	25,200	22,800	24,000	22,500	23,000
3		25,000	23,400	23,000	27,000		25,200	27,000	25,000	25,000
4		25,000	25,800	26,700	30,000		28,500	30,000	28,000	28,000
5	33,000	27,000	28,200	28,000	35,000	31,800	36,000	33,000	31,000	40,000
Frequency of Salary Review	Annual	Annual	Annual	Annual	Annual	Annual	Semi-Annual	Annual	Annual	Annual
Date of Last Review	6/87	9/87	Based on Hire Date	Hire Anniversary	9/87	6/87	6/87	7/87	8/87	12/86
Paid Holidays	8	8	9	10	10	7	8	8	8	8
Overtime Premium	Yes	Yes	Yes	No	Yes		Yes	Yes	Yes	Yes
Comp Time	Yes	No	Yes	No	Yes		Yes	Yes	Yes	Yes
Both (OP/CT)	Yes	No	Yes	No	Yes		Yes	Yes	Yes	Yes
Mandatory Comp	Yes	N/A	No	N/A				No		Yes
Discretion of Firm	No	N/A	No	N/A				No	Yes	N/A
Discretion of Employee	No	N/A	Yes	N/A	Yes	Yes	Yes	Yes		N/A
Overtime Rate										
Straight Time (ST)										
Time & One Half (TH)										
Years Employed										
1	ST	ST	TH		ST	ST	ST	ST	ST	ST
2	ST	ST	TH		ST	ST	ST	ST	ST	ST
3	ST	ST	TH		ST	ST	ST	ST	ST	ST
4	ST	ST	TH		ST	ST	ST	ST	ST	ST
5	ST	ST	TH		ST	ST	ST	ST	ST	
More than 5	ST	ST	TH		ST	ST	ST		No	
Firm Paid Premiums										
MBA	No	No	No	No	N/A	Yes	No	2,500	1,500	No
Tax Personnel	No	No	No	No	3,000	Yes	No	No	No	No
Management Advisory Personnel	No	No	No	No	N/A	Yes	No	No	No	No

Table 2
Fringe Benefits

	SIX SMALLER FIRMS						FOUR LARGER FIRMS			
	1	2	3	4	5	6	1	2	3	4
Health Insurance	X	X	X	X	X	X	X	X	X	X
Dental Benefits				X	X			X	X	X
Optical Benefits	X		X						X	
Life Insurance			X	X	X	X	X	X	X	X
Profit Sharing Plan		X				X	X		—	
Retirement Plan							X	X	X	X
College Tuition		X	X			X				
Prof. Org. dues	X	X	X	X	0.50	X	X	X	Selected	X
Other						CPE				
Professional Dues:										
State Society	X	X	X	X	0.50	X	X	X	X	X
AICPA Membership	X	X	X	X	0.50	X	X	X	X	X
NAA Dues	X	X	X	X	0.50		X			
Other		NABE	Fees*						CPE	CPE

*CPA exam fees; fees for courses to help pass CPA continuing education courses

Table 3
Comparative Data
Percent Increase Over Prior Year (1987 compared with 1986)

	EXPERIENCE IN YEARS					
	0	1	2	3	4	5
Comparison of Average Salaries						
Average Prior Year (1986)	$17,620	$19,790	$21,180	$24,900	$26,490	$30,370
Average Current Year (1987)	18,680	20,267	22,389	25,075	27,750	32,300
Difference	1,060	477	1,209	175	1,260	1,930
Percent Increase/(Decrease) Over Prior Year	6.02%	2.41%	5.71%	0.70%	4.76%	6.35%
Cost of Living Index$	2.96%	2.96%	2.96%	2.96%	2.96%	2.96%
Real Increase/(Decrease) in Wages	538	(109)	582	(562)	476	1,031

$ The index used is derived from the American Chamber of Commerce Researchers Association, All Cities Index, Reno-Sparks Area, 1st Quarter 1986 and 1987, as adapted to the Consumer Price Index for All Urban Consumers, published by the United States Department of Labor.

Table 4
Comparative Data
Percent Increase Over Prior Year (1987 Compared with 1985)

	EXPERIENCE IN YEARS					
	0	1	2	3	4	5
Comparison of Average Salaries						
Average Prior Year (1985)	$17,410	$18,380	$20,500	$22,930	$27,370	$31,050
Average Current Year (1987)	18,680	20,267	22,389	25,075	27,750	32,300
Difference	1,270	1,887	1,889	2,145	380	1,250
Percent Increase/(Decrease) Over 1985-87	7.29%	10.27%	9.21%	9.35%	1.39%	4.03%
Cost of Living Index$	2.96%	2.96%	2.96%	2.96%	2.96%	2.96%
Real Increase/(Decrease) in Wages	755	1,343	1,282	1,466	(430)	331

$ The index used is derived from the American Chamber of Commerce Researchers Association, All Cities Index, Reno-Sparks Area, 1st Quarter 1985, 1986 and 1987 as adapted to the Consumer Price Index for All Urban Consumers, published by the United States Department of Labor.

Exhibit 1

Graph of Comparison of Average Wages

By % Increase-Decrease 1987 over 1985

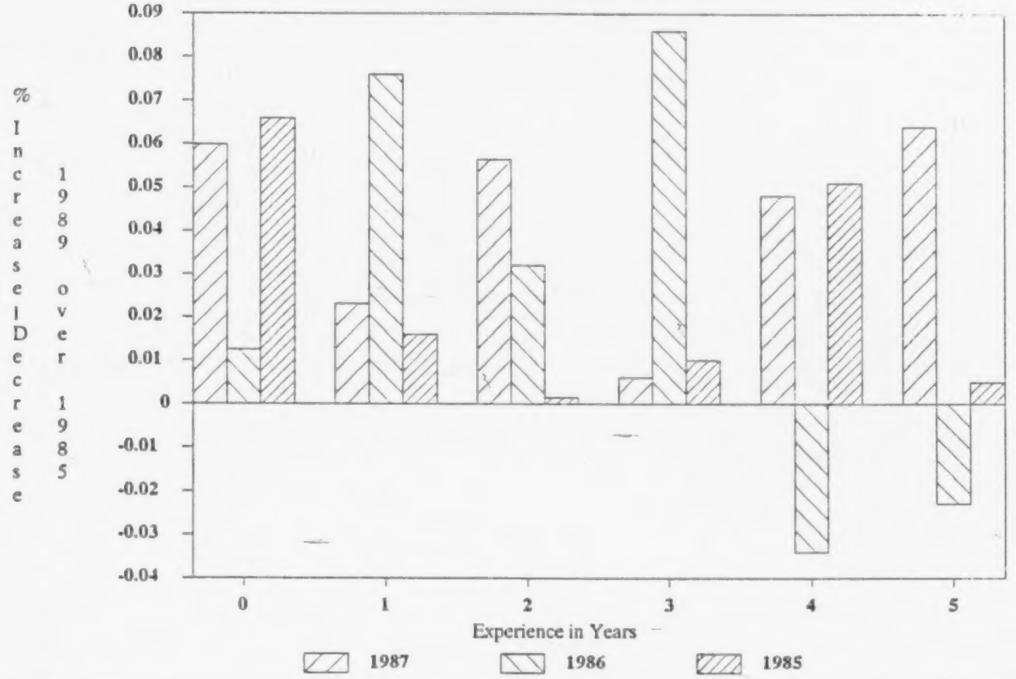
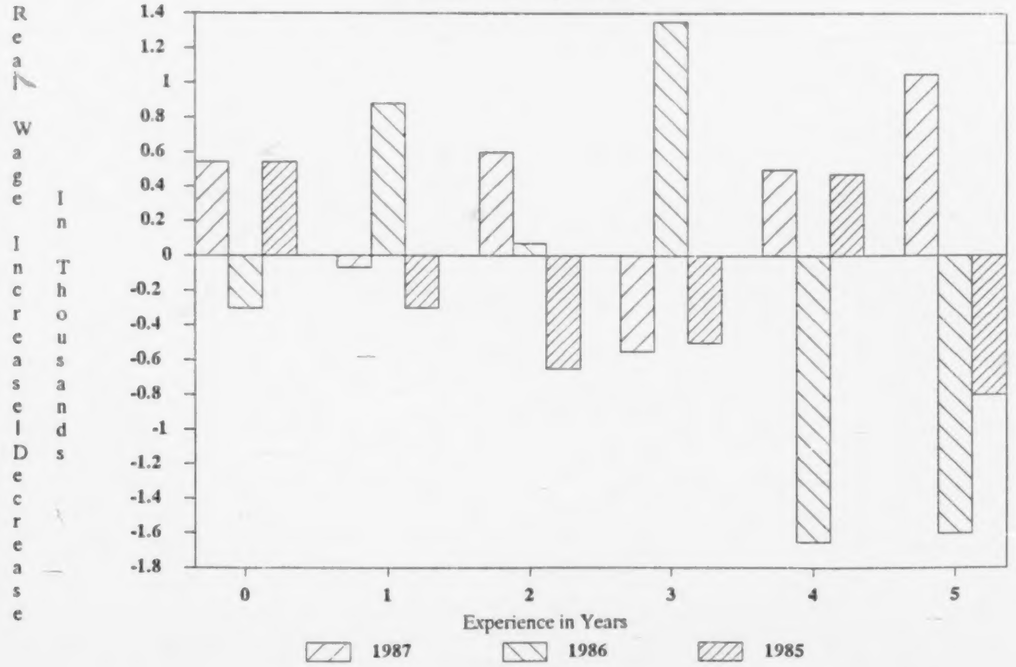


Exhibit 2

Graph of Real Wage Increase-Decrease

Actual Wage Adjusted for Reno CLI



Nevada Economic Indicators

Statewide Statistical Data

	October 1988	November 1988	December 1988	4th Quarter 1988	PERCENTAGE CHANGE 3rd Quarter-1988 4th Quarter-1988	PERCENTAGE CHANGE 4th Quarter-1987 4th Quarter-1988
Total Labor Force (000's)	593.0	596.2	595.4	594.9	+ 1.1	+ 5.0
Total Employment (000's)	566.9	570.4	566.6	568.0	+ 1.4	+ 6.5
Unemployment (000's)	26.1	25.8	28.8	26.9	- 5.7	- 19.3
Unemployment Rate	4.4	4.3	4.8	4.5	- 6.9	- 23.3
Seasonally Adjusted Rate	4.7	4.5	4.5	4.6	- 12.7	- 23.5
Agricultural Employment (000's)	6.0	5.8	5.2	5.7	- 20.9	+ 6.3
Establishment-Based Industrial Employment						
Total All Industries (000's)	544.0	547.3	544.6	545.3	+ 1.4	+ 6.5
Mining	11.0	11.2	11.3	11.2	+ 1.8	+ 26.4
Contract Construction	35.9	35.7	35.6	35.7	+ 1.1	+ 17.4
Manufacturing	24.3	24.4	24.5	24.4	- 0.1	+ 2.2
Transportation & Utilities						
Transportation	16.9	17.0	17.2	17.0	+ 1.6	+ 3.4
Railroads	0.9	0.9	0.9	0.9	+ 0.0	+ 0.0
Air	4.2	4.3	4.3	4.3	+ 0.0	- 3.0
Public Utilities	11.9	12.1	12.0	12.0	+ 1.4	+ 1.4
Total Trade	109.7	111.4	112.8	111.3	+ 1.7	+ 5.9
Wholesale Trade	20.1	20.2	20.1	20.1	+ 0.0	+ 5.8
Retail Trade	89.6	91.2	92.7	91.2	+ 2.1	+ 5.9
Finance, Ins. & Real Estate	25.3	25.3	25.3	25.3	+ 0.1	+ 5.7
Service Industries	239.7	240.6	236.3	238.9	- 0.1	+ 6.1
Hotels, Gaming & Recreation	148.3	148.1	144.6	147.0	- 1.3	+ 4.9
Medical & Health	23.0	23.1	23.2	23.1	+ 2.5	+ 6.5
Total Government	69.3	69.5	69.6	69.5	+ 7.4	+ 4.4
Federal	11.3	11.3	11.3	11.3	- 0.9	+ 0.6
State & Local	58.0	58.2	58.3	58.2	+ 9.2	+ 5.2
Education	27.4	27.6	27.8	27.6	+ 25.8	+ 6.3
Average Weekly Earnings in Selected Industries						
Mining	614.8	624.8	628.0	622.5	- 2.2	- 2.1
Construction	611.0	570.8	595.8	592.5	- 5.3	+ 1.5
Manufacturing	406.8	408.6	425.9	413.8	+ 2.7	+ 4.4
Public Utilities	596.2	622.8	578.6	599.2	+ 1.2	+ 4.2
Trade	319.9	321.6	315.6	319.0	- 1.2	+ 6.6
Average Weekly Hours in Selected Industries						
Mining	41.4	41.6	43.1	42.0	- 4.7	- 2.5
Construction	37.9	35.5	37.4	36.9	- 2.9	+ 2.2
Manufacturing	39.0	40.3	41.8	40.4	+ 1.8	- 0.2
Public Utilities	40.5	41.3	39.6	40.5	+ 0.3	+ 1.1
Trade	34.7	34.8	34.8	34.8	- 0.4	+ 2.5
Average Hourly Earnings in Selected Industries						
Mining	14.8	15.0	14.6	14.8	+ 2.5	+ 0.4
Construction	16.1	16.1	15.9	16.0	- 2.5	- 0.7
Manufacturing	10.4	10.1	10.2	10.2	+ 1.0	+ 4.7
Public Utilities	14.7	15.1	14.6	14.8	+ 0.9	+ 3.0
Trade	9.2	9.2	9.1	9.2	- 0.8	+ 4.1
Construction Activity						
Residential ($000's)	112,600	80,300	120,500	313,400	- 5.0	- 59.7
Nonresidential ($000's)	72,400	30,800	47,300	150,500	- 24.2	- 16.7
Nonbuilding ($000's)	13,000	11,800	33,400	58,200	+ 50.0	- 69.7
Total($000's)	198,100	122,900	201,200	522,200	- 7.9	- 54.6
# of New Dwelling Units	1,806	1,288	1,951	5,045	- 5.7	+ 44.6
Tax Collections						
Liquor	1,331,149	1,284,218	1,096,979	3,712,346	+ 7.9	- 1.2
Cigarette	2,290,176	2,232,000	2,317,824	6,840,000	- 8.7	- 3.0
Fuel	6,418,391	6,069,219	6,159,224	18,646,834	- 7.5	+ 13.9
Quarterly Taxable Sales ($000's)				3,169,088	+ 3.6	- 29.0
Quarterly Gaming Revenues ($000's)				1,117,404	- 4.5	+ 17.7
Highway Traffic Flow						
17 Selected Stations (Avg. Daily)	159,774	146,278	139,226	148,426	- 17.5	+ 7.4

Las Vegas Metropolitan Statistical Area

					PERCENTAGE CHANGE	
	October 1988	November 1988	December 1988	4th Quarter 1988	3rd Quarter-1988 4th Quarter-1988	4th Quarter-1987 4th Quarter-1988
Total Labor Force (000's)	344.2	346.9	347.2	346.1	+ 1.7	+ 4.8
Total Employment (000's)	327.9	331.0	330.0	329.6	+ 2.5	+ 6.3
Unemployment (000's)	16.3	15.1	17.2	16.2	- 12.3	- 20.1
Unemployment Rate	4.7	4.4	5.0	4.7	- 14.0	- 23.4
Seasonally Adjusted Rate	4.9	4.4	4.6	4.6	- 15.8	- 24.0
Agricultural Employment (000's)	1.5	1.4	1.3	1.4	- 20.8	+ 6.0
Establishment-Based Industrial Employment						
Total All Industries (000's)	309.1	313.3	312.8	311.7	+ 2.6	+ 6.5
Mining	0.3	0.3	0.3	0.3	+ 0.0	+ 12.5
Contract Construction	21.0	21.4	21.9	21.4	+ 2.6	+ 15.9
Manufacturing	9.0	9.1	9.1	9.1	+ 1.1	+ 1.5
Transportation & Utilities						
Transportation	9.9	10.1	10.1	10.0	+ 1.0	+ 2.0
Railroads	0.3	0.3	0.3	0.3	+ 0.0	+ 0.0
Air	3.0	3.0	3.0	3.0	- 2.2	- 8.2
Public Utilities	6.4	6.6	6.4	6.5	+ 2.6	+ 3.2
Total Trade	65.2	66.2	67.2	66.2	+ 2.6	+ 6.6
Wholesale Trade	10.8	10.9	10.8	10.8	+ 0.6	+ 6.6
Retail Trade	54.4	55.3	56.4	55.4	+ 3.0	+ 6.6
Finance, Ins. & Real Estate	15.7	15.8	16.0	15.8	+ 1.9	+ 8.4
Service Industries	146.4	148.4	146.2	147.0	+ 1.4	+ 6.3
Hotels, Gaming & Recreation	95.9	96.6	95.1	95.9	+ 0.7	+ 6.5
Total Government	35.2	35.4	35.6	35.4	+ 9.0	+ 4.2
Federal	6.4	6.5	6.5	6.5	+ 1.0	+ 2.1
State & Local	28.8	28.9	29.1	28.9	+ 11.0	+ 4.7
Education	14.2	14.3	14.4	14.3	+ 29.2	+ 5.7
Construction Activity						
Las Vegas						
Residential ($000's)	25,924	30,021	43,814	99,759	- 17.7	+ 194.5
Nonresidential ($000's)	27,960	25,266	18,104	71,330	+ 86.6	+ 94.5
Total Value ($000's)	53,884	55,287	61,917	171,088	+ 7.3	+ 142.5
# of New Family Units	321	236	351	908	- 15.4	+ 56.3
North Las Vegas						
Residential ($000's)	987	0	4,359	5,346	+ 477.3	+ 511.0
Nonresidential ($000's)	418	443	757	1,618	+ 169.2	- 26.6
Total Value ($000's)	1,405	443	5,116	6,964	+ 356.1	+ 268.5
# of Permits	15	0	54	69	- 42.0	- 49.3
Quarterly Taxable Sales ($000's)				1,747,154	+ 6.7	+ 12.9
Quarterly Gaming Revenues ($000's)				822,503	+ 3.2	+ 21.8
Air Transportation-McCarran						
Passengers (Arrivals & Departures)	1,396,632	1,276,007	1,050,657	3,723,296	- 3.3	+ 3.4
Cargo Enplaned (lbs.)	3,291,385	3,332,567	4,596,295	11,220,247	+ 20.6	+ 36.2
Cargo Deplaned (lbs.)	3,964,710	4,269,084	4,678,710	12,912,504	+ 11.1	+ 21.0
Highway Traffic Flow						
4 Selected Stations (Avg. Daily)	40,773	41,469	39,804	40,682	- 11.4	+ 12.1
Room Tax ($)						
Clark County	2,438,456	2,011,242	3,089,138	7,535,236	+ 11	+ 11
Las Vegas	451,774	465,024	502,300	1,419,098	+ 7	+ 20
MSA Total	2,886,630	2,476,266	3,591,439	8,954,335	+ 9.9	+ 10.8

Reno Metropolitan Statistical Area

	October 1988	November 1988	December 1988	4th Quarter 1988	PERCENTAGE CHANGE 3rd Quarter-1988 4th Quarter-1988		4th Quarter 1987 4th Quarter-1988	
Total Labor Force (000's)	144.2	143.6	143.7	143.8	+	0.1	+	2.9
Total Employment (000's)	138.9	137.9	137.1	138.0	-	0.0	+	4.2
Unemployment (000's)	5.3	5.7	6.6	5.9	+	3.5	-	21.1
Unemployment Rate	3.6	4.0	4.6	4.1	+	3.4	-	23.3
Seasonally Adjusted Rate	4.1	4.1	4.1	4.1	-	9.6	-	23.6
Agricultural Employment (000's)	0.8	0.8	0.7	0.8	-	20.7	+	4.5
Establishment-Based Industrial Employment								
Total All Industries (000's)	141.8	141.2	140.5	141.2	+	0.2	+	4.1
Mining	1.2	1.1	1.1	1.1	-	2.9	+	17.2
Contract Construction	9.0	8.7	8.4	8.7	-	1.5	+	20.8
Manufacturing	8.0	8.0	8.1	8.0	-	0.4		0.8
Transportation & Utilities								
Transportation	5.3	5.2	5.3	5.3	+	4.6	+	6.0
Railroads	0.3	0.3	0.3	0.3	+	0.0	+	0.0
Public Utilities	4.2	4.2	4.3	4.2	+	44.3	-	1.6
Total Trade	31.7	32.1	32.6	32.1	+	2.0	+	4.3
Wholesale Trade	7.6	7.6	7.6	7.6	-	1.7	+	3.2
Retail Trade	24.1	24.5	25.0	24.5	+	3.2	+	4.7
Finance, Ins. & Real Estate	7.0	6.9	6.9	6.9	-	2.3	+	0.0
Service Industries	58.2	57.6	56.4	57.4	-	2.2	+	3.3
Hotels, Gaming & Recreation	32.5	32.0	30.8	31.8	-	3.9	+	1.1
Total Government	17.2	17.4	17.4	17.3	+	6.8	+	3.2
Federal	3.0	3.0	2.9	3.0	-	1.1	-	1.1
State & Local	14.2	14.4	14.5	14.4	+	8.6	+	4.1
Education	8.0	8.2	8.4	8.2	+	21.2	+	4.2
Construction Activity								
Reno								
Residential ($000's)	5,487	5,499	7,461	18,447	-	6.4	-	12.2
Nonresidential ($000's)	3,348	7,502	1,040	11,890	-	27.4	+	55.9
Total Value ($000's)	8,835	13,001	8,501	30,337	-	15.9	+	5.9
# of New Family Units	72	73	91	236	-	21.3	-	33.9
Sparks								
Residential ($000's)	14,088	253	355	14,696	+	154.7	+	311.3
Nonresidential ($000's)	2,896	1,237	1,657	5,790	-	48.7	-	32.3
Total ($000's)	16,983	1,490	2,012	20,485	+	20.1	+	98.3
# of New Family Units	19	3	4	26	-	74.8	-	77.4
Washoe Co. (Unincorporated)								
Residential ($000's)	4,486	3,972	2,429	10,887	-	45.1		0.0
Nonresidential ($000's)	412	1,257	477	2,146	-	44.7	-	62.1
Total Value ($000's)	4,898	5,230	2,906	13,034	-	45.0		20.0
# of New Family Units	46	41	26	113	-	45.1	+	2.7
Quarterly Taxable Sales ($000's)				667,744	+	2.6	+	10.1
Quarterly Gaming Revenues ($000's)				174,767	-	16.3	+	3.5
Air Transportation-Reno								
Passengers (Arrivals & Departures)	261,669	234,827	232,124	728,620	-	11.4	-	7.4
Cargo Enplaned (lbs.)	585,931	579,892	881,154	2,046,977	+	34.2	-	4.4
Cargo Deplaned (lbs.)	862,055	818,824	1,151,461	2,832,340	+	21.2	-	5.4
Highway Traffic Flow								
7 Selected Stations (Avg. Daily)	96,562	85,860	82,734	88,385	-	18.6	+	3.6
Room Tax ($)								
MSA Total	1,225,963	862,518	762,372	2,850,853	-	30.6	+	5.2

Nevada Statistical Data by County

	October 1988	November 1988	December 1988	4th Quarter 1988	PERCENTAGE CHANGE 3rd Quarter-1988 4th Quarter-1988	PERCENTAGE CHANGE 4th Quarter-1987 4th Quarter-1988
CARSON CITY						
Total Labor Force	21,900	22,180	22,230	22,103	+ 0.8	+ 0.6
Total Employment	21,020	21,190	21,190	21,133	+ 0.9	+ 2.2
Unemployment	880	990	1,040	970	- 0.3	- 25.6
Unemployment Rate	4.0	4.5	4.7	4.4	- 1.5	- 25.4
Construction Activity						
Residential Value ($000's)	3,048	2,094	0	5,142	- 48.7	- 16.3
Nonresidential Value ($000's)	1,012	536	349	1,897	+ 1.0	- 73.1
Total Value ($000's)	4,060	2,630	2,292	8,982	- 24.6	- 31.9
# of New Family Units	38	23	17	78	- 32.2	+ 2.6
Quarterly Taxable Sales ($000's)				99,271	+ 1.2	- 28.3
Quarterly Gaming Revenues ($000's)				8,717	- 21.2	+ 3.4
CHURCHILL						
Total Labor Force	8,980	9,100	9,070	9,050	- 2.1	+ 21.1
Total Employment	8,540	8,620	8,590	8,583	- 2.0	+ 23.6
Unemployment	440	480	480	466	- 4.1	- 11.9
Unemployment Rate	4.9	5.3	5.3	5.2	- 1.9	- 26.9
Construction Activity						
Residential Value ($000's)	294	170	389	853	- 24.1	- 14.6
Nonresidential Value ($000's)	0	0	0	232	- 96.3	- 13.8
Total Value ($000's)	294	170	621	1,085	- 85.3	- 14.4
# of New Family Units	4	2	5	11	- 31.3	+ 0.0
Quarterly Taxable Sales ($000's)	0	0	0	24,043	- 24.9	- 50.8
DOUGLAS						
Total Labor Force	13,140	12,960	12,910	13,003	- 3.2	+ 1.0
Total Employment	12,590	12,440	12,270	12,433	- 3.9	+ 2.7
Unemployment	550	560	640	583	+ 19.9	- 23.2
Unemployment Rate	4.2	4.3	4.9	4.5	+ 24.1	- 24.7
Quarterly Taxable Sales ($000's)				65,091	- 18.0	+ 18.7
Quarterly Gaming Revenues ($000's)				76,877	- 30.4	+ 18.3
ELKO						
Total Labor Force	14,650	14,600	14,250	14,500	- 0.8	+ 11.5
Total Employment	13,990	13,860	13,540	13,796	- 1.9	+ 12.3
Unemployment	660	740	710	703	+ 26.3	- 1.9
Unemployment Rate	4.5	5.0	5.0	4.8	+ 28.3	- 12.7
Construction Activity/Elko City						
Residential ($000's)	696	1,289	1,458	3,443	- 56.3	- 43.9
Nonresidential ($000's)	1,919	139	101	2,159	- 65.9	+ 445.2
Total Value ($000's)	2,615	1,428	1,559	5,602	- 54.5	- 14.2
# of New Dwelling Units	21	30	25	76	- 35.0	+ 230.4
Quarterly Taxable Sales ($000's)				98,483	- 3.6	+ 25.5
Quarterly Gaming Revenues ($000's)				22,636	- 22.7	+ 4.7
ESMERALDA						
Total Labor Force	970	990	1,010	990	+ 1.7	+ 31.4
Total Employment	930	950	970	950	+ 3.3	+ 33.2
Unemployment	40	40	40	40	- 25.0	+ 0.0
Unemployment Rate	4.5	4.4	3.7	4.2	- 23.6	- 27.2
Quarterly Taxable Sales ($000's)				2,058	+ 47.4	- 11.9
EUREKA						
Total Labor Force	2,540	2,710	2,880	2,710	+ 26.4	+ 56.6
Total Employment	2,510	2,670	2,830	2,670	+ 27.3	+ 57.7
Unemployment	30	40	50	40	- 14.3	+ 9.1
Unemployment Rate	1.2	1.6	1.8	1.5	- 30.3	- 27.0
Quarterly Taxable Sales ($000's)				18,655	- 35.8	+ 34.0

Nevada Statistical Data by County (Continued)

	October 1988	November 1988	December 1988	4th Quarter 1988	PERCENTAGE CHANGE 3rd Quarter-1988 4th Quarter-1988	PERCENTAGE CHANGE 4th Quarter 1987 4th Quarter-1988
HUMBOLDT						
Total Labor Force	6,550	6,520	6,400	6,490	+ 0.7	+ 18.0
Total Employment	6,270	6,250	6,120	6,213	+ 0.0	+ 19.4
Unemployment	280	270	280	276	+ 20.3	- 6.7
Unemployment Rate	4.2	4.1	4.4	4.2	+ 21.0	- 21.1
Quarterly Taxable Sales ($000's)				49,535	+ 3.6	+ 32.4
LANDER						
Total Labor Force	3,020	3,090	3,050	3,053	- 8.1	+ 29.2
Total Employment	2,890	2,900	2,890	2,893	- 9.3	+ 29.7
Unemployment	130	190	160	160	+ 20.0	+ 20.0
Unemployment Rate	4.2	6.1	5.2	5.2	+ 27.0	- 7.7
Quarterly Taxable Sales ($000's)				19,049	+ 14.5	+ 11.4
LINCOLN						
Total Labor Force	2,050	2,120	2,140	2,103	+ 0.8	- 0.5
Total Employment	1,970	2,020	2,000	1,996	- 0.2	+ 0.3
Unemployment	80	100	140	106	+ 23.1	- 13.5
Unemployment Rate	3.7	4.6	6.3	4.9	+ 20.7	- 16.6
Quarterly Taxable Sales ($000's)				2,675	+ 8.3	+ 26.6
LYON						
Total Labor Force	11,570	11,570	11,530	11,556	- 0.5	+ 9.7
Total Employment	11,040	10,990	10,910	10,980	- 1.1	+ 11.2
Unemployment	530	580	620	576	+ 13.1	- 13.1
Unemployment Rate	4.6	5.0	5.4	5.0	+ 14.5	- 20.6
Quarterly Taxable Sales ($000's)				20,548	+ 3.8	+ 22.3
MINERAL						
Total Labor Force	2,950	3,040	3,010	3,000	+ 0.8	- 3.4
Total Employment	2,840	2,860	2,840	2,846	+ 0.4	- 2.3
Unemployment	110	180	170	153	+ 9.5	- 20.7
Unemployment Rate	3.9	5.8	5.7	5.1	+ 10.0	- 18.1
Quarterly Taxable Sales ($000's)				12,940	+ 18.6	+ 33.6
NYE						
Total Labor Force	8,150	8,230	8,560	8,313	+ 4.0	+ 9.3
Total Employment	7,820	7,890	8,270	7,993	+ 4.6	+ 11.4
Unemployment	330	340	290	320	- 8.6	- 25.6
Unemployment Rate	4.0	4.1	3.4	3.8	- 12.2	- 32.4
Quarterly Taxable Sales ($000's)				48,310	- 6.2	+ 29.6
PERSHING						
Total Labor Force	2,660	2,690	2,690	2,680	+ 6.2	+ 17.9
Total Employment	2,570	2,600	2,590	2,586	+ 5.0	+ 19.0
Unemployment	90	90	100	93	+ 55.6	- 6.7
Unemployment Rate	3.3	3.2	3.6	3.4	+ 42.3	- 21.7
Quarterly Taxable Sales ($000's)				8,778	- 18.3	+ 7.4
STOREY						
Total Labor Force	860	860	820	846	- 16.4	- 11.2
Total Employment	820	800	770	796	- 17.9	- 10.2
Unemployment	40	60	50	50	+ 15.4	- 25.0
Unemployment Rate	4.7	6.6	6.5	5.9	+ 36.9	- 12.7
Quarterly Taxable Sales ($000's)				3,766	- 37.1	+ 17.7
WHITE PINE						
Total Labor Force	4,090	4,030	3,980	4,033	- 6.6	+ 0.2
Total Employment	3,900	3,830	3,760	3,830	- 6.7	+ 1.2
Unemployment	190	200	220	203	- 6.2	- 16.4
Unemployment Rate	4.7	5.0	5.6	5.1	+ 2.0	- 16.4
Quarterly Taxable Sales ($000's)				17,820	- 4.5	+ 25.7

Selected U.S. Economic Indicators

Consumer Price Index & Indexes of Selected Categories All Urban Consumers (1982-1984 = 100%)

	October 1988	November 1988	December 1988	4th Quarter 1988	PERCENTAGE CHANGE 3rd Quarter-1988 4th Quarter-1988	4th Quarter-1987 4th Quarter-1988
All Items	120.2	120.3	120.5	120.3	+ 1.0	+ 4.3
Food	120.3	120.2	120.7	120.4	+ 0.8	+ 5.2
Housing	119.9	119.9	120.2	120.0	+ 0.4	+ 3.9
Apparel & Upkeep	120.7	119.9	118.0	119.5	+ 4.5	+ 4.4
Transportation	110.0	110.7	110.8	110.5	+ 1.0	+ 2.8
Medical Care	141.2	141.8	142.3	141.8	+ 1.5	+ 6.8

Producer Price Indexes for Selected Commodity Groupings (1982-1984 = 100%)

	October 1988	November 1988	December 1988	4th Quarter 1988	3rd Quarter-1988 4th Quarter-1988	4th Quarter-1987 4th Quarter-1988
All Commodities	108.2	108.3	109.0	108.5	+ 0.5	+ 4.2
Fuel & Power	64.5	64.5	65.9	65.0	- 3.4	- 7.8
Machinery & Equipment	114.1	114.5	114.8	114.5	+ 0.8	+ 3.1
Metals & Metal Products	121.3	122.7	123.8	122.6	+ 2.4	+ 9.7
Nonmetallic Mineral Products	111.5	111.6	111.7	111.6	+ 0.4	+ 1.1
Textile Products & Apparel	109.9	110.2	[illegible].5	110.2	+ 0.5	+ 3.3

U.S. Labor Force

	October 1988	November 1988	December 1988	4th Quarter 1988	3rd Quarter-1988 4th Quarter-1988	4th Quarter-1987 4th Quarter-1988
Civilian Labor Force (000's)	112,432	122,639	122,120	119,063	- 3.2	- 1.2
Total Employment (000's)	116,250	116,314	115,978	116,180	- 0.2	+ 2.1
Unemployment (000's)	6,182	6,325	6,142	6,216	- 6.1	- 7.5
Unemployment Rate	5.0	5.2	5.0	5.1	- 5.0	- 9.0
Seasonally Adjusted	5.3	5.4	5.3	5.3	- 2.4	- 9.6

DATA SOURCES

Information for statistical tables was developed in cooperation with the following sources:
Airport Authority of Washoe County; Carson City Department of Public Works; Churchill County; City of Elko; City of Las Vegas, Nevada Building and Safety; City of North Las Vegas; City of Reno, Building and Safety Department; City of Sparks; Clark County Department of Aviation; Las Vegas Convention/Visitors Authority; Nevada Power Co.; Reno-Sparks Convention/Visitors Authority; State of Nevada Department of Taxation; State of Nevada Department of Transportation; State of Nevada Employment Security Department; State of Nevada Gaming Control Board; U.S. Department of Commerce, Bureau of Labor Statistics; Washoe County Building and Safety Division; and White Pine County Regional Planning Commission.

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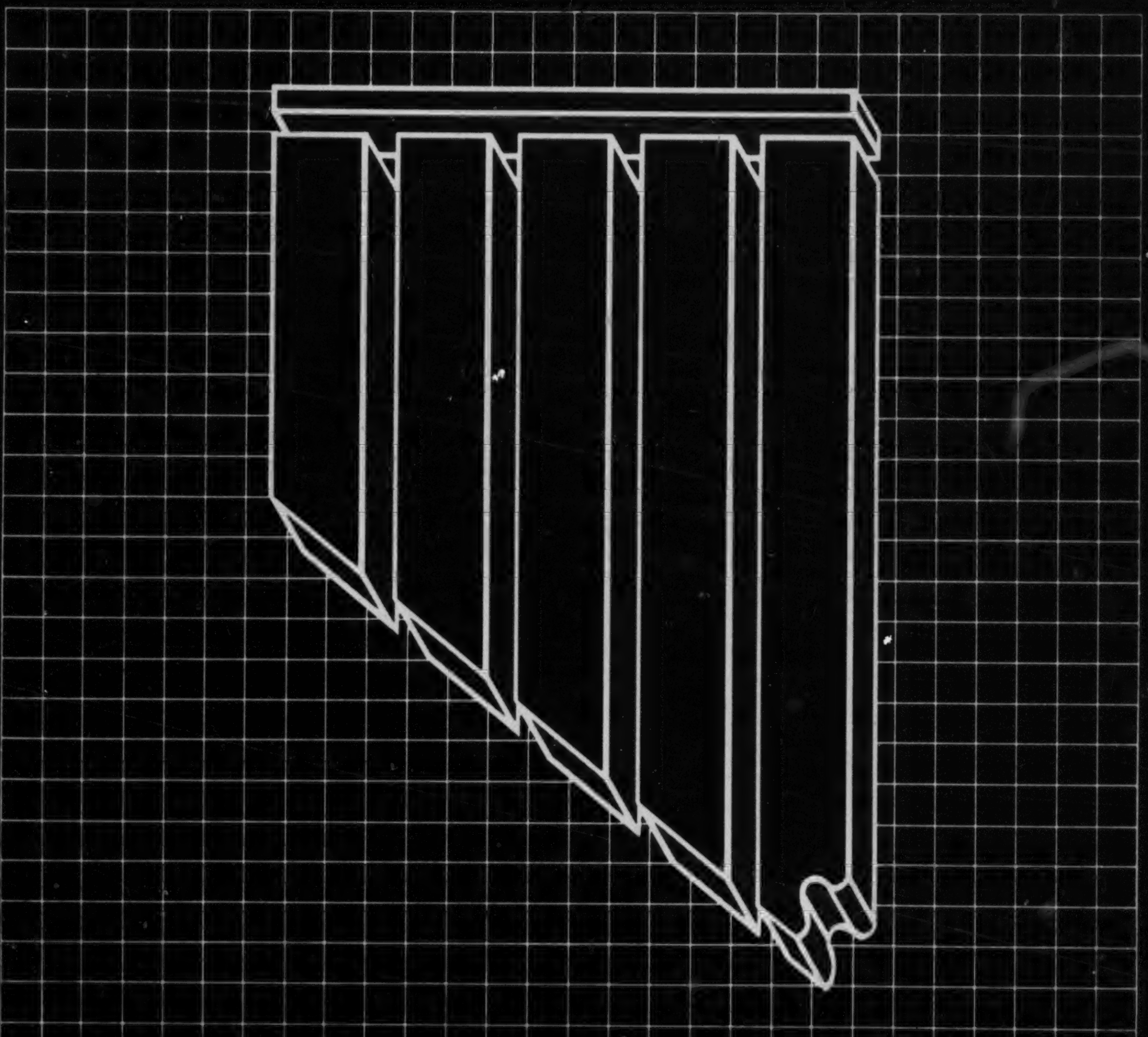
ECONOMIC INDICATORS



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PREFACE

A New Format for the *Nevada Review of Business and Economics*

The *Nevada Review of Business and Economics* emerged in 1978 from a monthly newsletter to a quarterly publication in order to better serve the community. Specifically, articles focused on issues of interest to Nevada have been published along with presentations of key economic indicators of the Nevada economy and national economic statistics. Over the years, the *Review* has made an effort to improve the quality of articles and has increasingly relied on critical professional reviews of submitted articles to make publication decisions.

This issue marks a new stage in the evolution of the *Review*. The *Review* will continue to be published in four issues per year; however, issues number 1 and 3 will consist of economic indicators while issues number 2 and 4 will continue to consist of professionally refereed articles relating to the western region and a condensed statistical appendix.

The Economic Indicators issue of the *Review* provides a broad overview of the national, regional, state and local economies by presenting a number of key measures of economic activity in table and graph forms. The amount of attention devoted to national and regional economic measures is derived from the well-recognized relationship between the Nevada economy and the national economy. In the 1970's it was frequently claimed that Nevada was "recession proof"; or more specifically, that Nevada's gaming industry was "recession proof." That claim was not really accurate in the 1970's and it has been clearly inaccurate in the 1980's. The Nevada economy is sensitive to national and regional economic forces and is no longer an "economic island unto itself." With regard to regional forces, California's economy strongly influences the Nevada economy.

Thus, the Economic Indicators issue provides the reader with an overall view of economic developments in Nevada, the western region, and the nation. Data tables and graphs are presented for the following economic areas: (1) national, (2) western region and United States, (3) State of Nevada, (4) metropolitan areas within Nevada, and (5) Nevada counties. The data are presented annually for the most part beginning in 1980 through 1987 and monthly or quarterly thereafter.

Data Sources

The data sources are numerous. The majority of Nevada data was obtained in cooperation with the following: Airport Authority of Washoe County; Carson City Department of Public Works; Churchill County; City of Elko; City of Las Vegas, Nevada Building and Safety; City of North Las Vegas; City of Reno, Building and Safety Department; City of Sparks; Clark County Department of Aviation; Las Vegas Convention/Visitors Authority; Nevada Power Company; Reno-Sparks Convention/Visitors Authority; State of Nevada Department of Taxation; State of Nevada Department of Transportation; State of Nevada Employment Security Department; State of Nevada Gaming Control Board; State of Nevada Health Division; State of Nevada Office of the Demographer; U.S. Bureau of the Census; U.S. Department of Commerce; U. S. Bureau of Labor Statistics; Washoe County Building and Safety Division; and White Pine County Regional Planning Commission.

National data were obtained from computer files provided by Citicorp Database Services and the western regional data were provided by the Research Department of the Federal Reserve Bank of San Francisco.

The Bureau of Business and Economic Research and the *Review* staff express appreciation for the efforts of numerous individuals representing these data sources without which this publication would not have been possible. Specifically, the *Review* would like to extend special thanks to Carolyn Sherwood-Call and Randall Pozdena of the Federal Reserve Bank of San Francisco. They were particularly helpful in providing data for the western region. In addition, the assistance of Steve Dean, a research associate at the Federal Reserve Bank of San Francisco is acknowledged.

Staff members of the Bureau of Business and Economic Research also deserve special mention for their role in bringing the Economic Indicators issue to reality. Their names are listed on the inside front cover. Dottie Clevenger and Martin Kyte, however, deserve special thanks for their tremendous efforts in this task.

Considerations

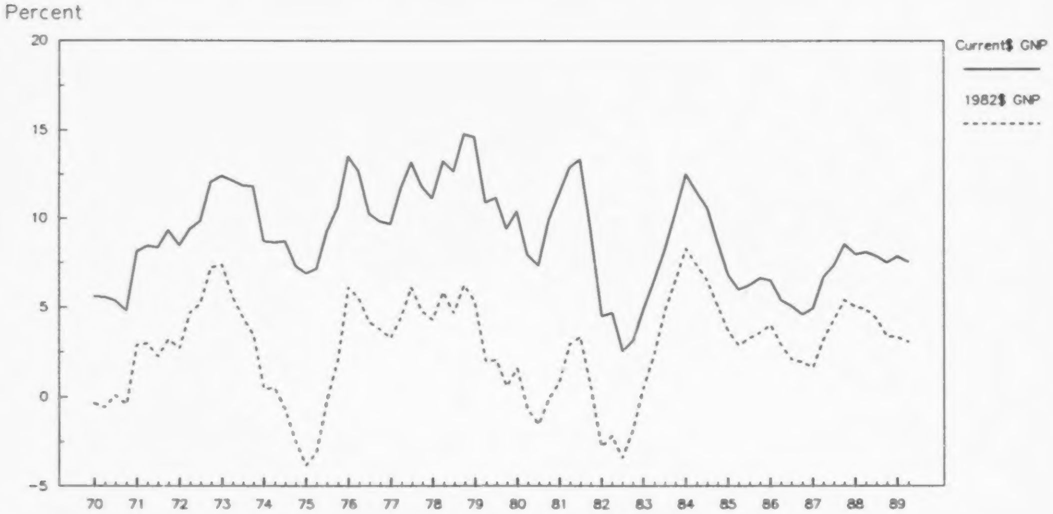
The majority of data in the Economic Indicators issue is self explanatory; however, there are three considerations to bear in mind. First, monthly and quarterly percentage changes are calculated for the month or quarter in the previous year unless noted otherwise. Second, data that was either obtained in a seasonally adjusted form or was seasonally adjusted by the Bureau of Business and Economic Research is labeled SA. All other data should be regarded as unadjusted for seasonal variation. Third, annual values are averages of the monthly or quarterly values unless otherwise noted.

NATIONAL

GROSS NATIONAL PRODUCT (GNP)

Current and Constant (1982) Dollars, SA

Percent Change from Year-Ago-Quarter



GROSS NATIONAL PRODUCT AND COMPONENTS

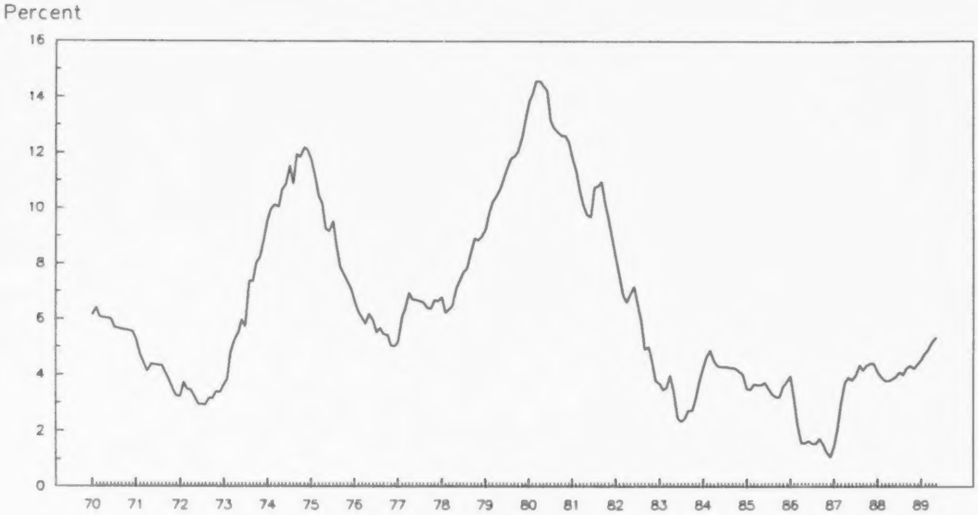
(Billions of Dollars, SA)

Year/ Quarter	Gross National Product	Personal Consumption Expenditures	Gross Private Domestic Investment	Government Purchases of Goods and Services	Imports of Goods and Services	Exports of Goods and Services	Gross National Product (1982$)
1970	1,015.5	640.0	148.8	218.2	60.5	68.9	2,416.2
1971	1,102.7	691.5	172.5	232.4	66.1	72.4	2,484.8
1972	1,212.8	757.6	202.0	250.0	78.2	81.4	2,608.5
1973	1,359.3	837.2	238.8	266.5	97.3	114.1	2,744.0
1974	1,472.8	916.5	240.9	299.1	135.3	151.5	2,729.3
1975	1,598.4	1,012.8	219.6	335.1	130.3	161.3	2,695.0
1976	1,782.8	1,129.4	277.7	356.9	158.9	177.8	2,826.7
1977	1,990.5	1,257.2	344.1	387.3	189.7	191.6	2,958.7
1978	2,249.7	1,403.5	416.8	425.2	223.4	227.5	3,115.2
1979	2,508.2	1,566.7	454.8	467.8	272.5	291.2	3,192.3
1980	2,732.0	1,732.6	436.9	530.3	318.9	351.0	3,187.2
1981	3,052.6	1,915.1	515.5	588.1	348.9	382.8	3,248.7
1982	3,166.0	2,050.7	447.3	641.7	335.6	361.9	3,166.0
1983	3,405.7	2,234.6	502.3	675.0	358.6	352.5	3,279.1
1984	3,772.2	2,430.5	664.8	735.8	442.5	383.5	3,501.4
1985	4,014.9	2,629.0	643.1	820.8	448.8	370.9	3,618.7
1986	4,231.6	2,797.5	659.4	872.2	493.8	396.5	3,717.9
1987	4,524.3	3,010.8	699.9	926.1	561.2	448.6	3,853.7
1988	4,880.6	3,235.1	750.3	968.9	621.3	547.6	4,024.4
1988:1	4,739.8	3,148.1	728.8	945.7	604.3	521.6	3,974.8
1988:2	4,838.5	3,204.9	748.4	960.1	607.5	532.5	4,010.7
1988:3	4,926.9	3,263.4	771.1	958.6	623.0	556.8	4,042.7
1988:4	5,017.3	3,324.0	752.8	1,011.4	650.5	579.7	4,069.4
1988	4,880.6	3,235.1	750.3	968.9	621.3	547.6	4,024.4
1989:1	5,113.1	3,381.4	769.6	1,016.0	659.6	605.6	4,106.8
1989:2	5,203.8	3,446.8	774.7	1,034.9	675.9	623.2	4,134.0

CONSUMER PRICE INDEX (CPI): ALL ITEMS

Urban Consumers, SA: 1982–84 = 100

Percent Change from Year-Ago-Month



PRICE INDICES

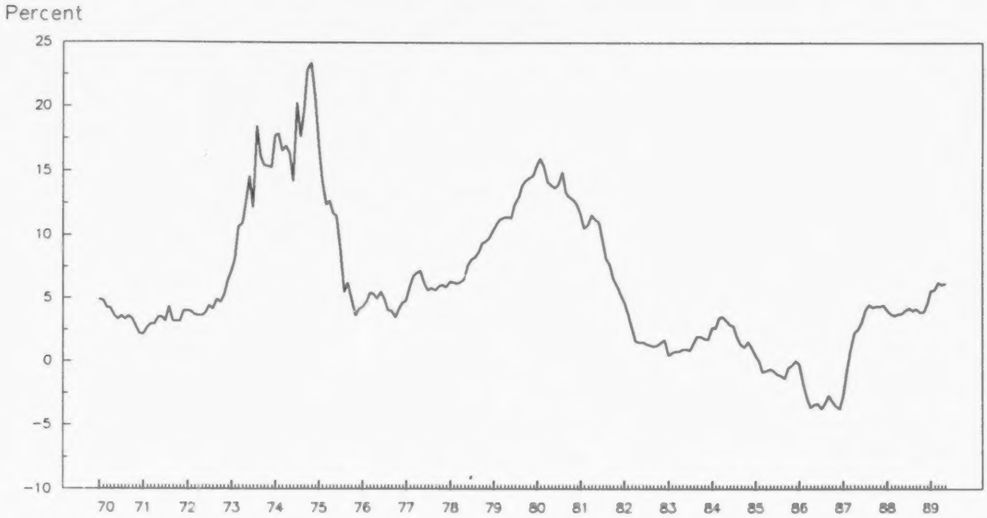
(1982 - 1984 = 100, SA)

Year/ Month	Energy	Food & Beverage	Housing	Renter's Cost	All Items	All Items Less: Energy	All Items Less: Food
1980	86.1	86.8	81.0		82.4	81.9	81.4
1981	97.7	93.5	90.4		90.9	90.1	90.3
1982	99.2	97.3	96.9		96.5	96.2	96.3
1983	99.9	99.5	99.5	103.1	99.6	99.6	99.6
1984	100.9	103.4	103.6	108.6	103.9	104.4	104.0
1985	101.5	105.6	107.7	115.3	107.6	108.5	108.0
1986	88.2	109.0	110.9	121.9	109.7	112.7	109.7
1987	88.2	113.5	114.2	127.6	113.7	117.4	113.6
1988:5	88.9	117.1	117.9	132.6	117.7	121.8	117.7
1988:6	88.7	117.7	118.2	133.0	118.1	122.2	118.0
1988:7	88.9	118.7	118.5	133.4	118.6	122.7	118.4
1988:8	89.5	119.4	118.9	133.8	119.0	123.1	118.8
1988:9	89.3	120.1	119.3	133.8	119.5	123.7	119.2
1988:10	89.2	120.4	119.6	134.1	120.0	124.2	119.7
1988:11	89.5	120.5	120.1	134.2	120.3	124.6	120.1
1988:12	89.2	121.0	120.6	134.9	120.7	125.1	120.5
1988	88.8	118.2	118.4	133.1	118.4	122.5	118.2
1989:1	89.9	121.8	120.9	135.2	121.4	125.8	121.1
1989:2	90.4	122.4	121.3	136.4	121.9	126.3	121.6
1989:3	91.4	123.3	121.7	138.2	122.5	126.9	122.2
1989:4	96.1	123.9	121.8	137.3	123.3	127.2	123.0
1989:5	97.6	124.7	122.3	137.3	124.0	127.8	123.7

PRODUCER PRICE INDEX (PPI): ALL COMMODITIES

1982 = 100

Percent Change from Year-Ago-Month

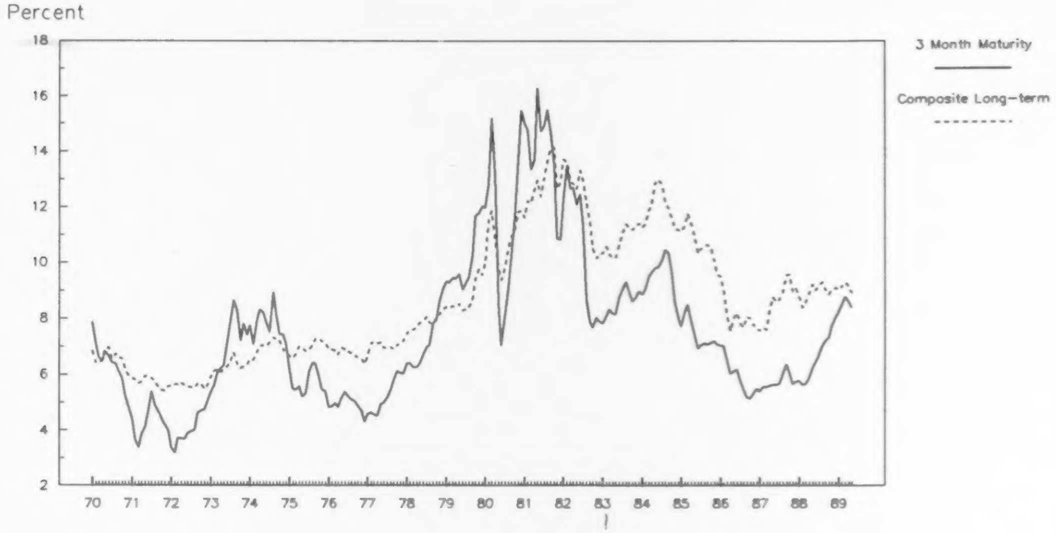


PRODUCER PRICE INDICES (PPI)

Year/ Month	ALL COMMODITIES	FINISHED GOODS	INDUSTRIAL COMMODITIES	INTERMEDIATE MATERIALS, SUPPLIES & COMPONENTS
1980	89.8	88.0	88.0	90.3
1981	98.0	96.2	97.4	98.6
1982	100.0	100.0	100.0	100.0
1983	101.3	101.6	101.1	100.6
1984	103.7	103.8	103.3	103.1
1985	103.2	104.7	103.7	102.7
1986	100.2	103.2	100.0	99.1
1987	102.8	105.4	102.6	101.5
1988:5	106.5	107.5	106.1	106.3
1988:6	107.2	107.7	106.4	107.4
1988:7	107.9	108.6	106.8	108.2
1988:8	108.0	108.7	107.0	108.4
1988:9	108.1	108.6	106.8	108.7
1988:10	108.2	109.4	107.1	108.6
1988:11	108.3	109.8	107.5	108.9
1988:12	109.0	110.0	108.1	109.4
1988	106.9	108.0	106.3	107.1
1989:1	110.5	111.1	109.6	110.6
1989:2	110.8	111.7	110.1	111.0
1989:3	111.5	112.1	110.5	111.5
1989:4	112.3	113.0	111.7	112.3
1989:5	113.1	114.2	112.4	112.7

U.S. TREASURY SECURITY RATES

Short Rates vs. Long Rates

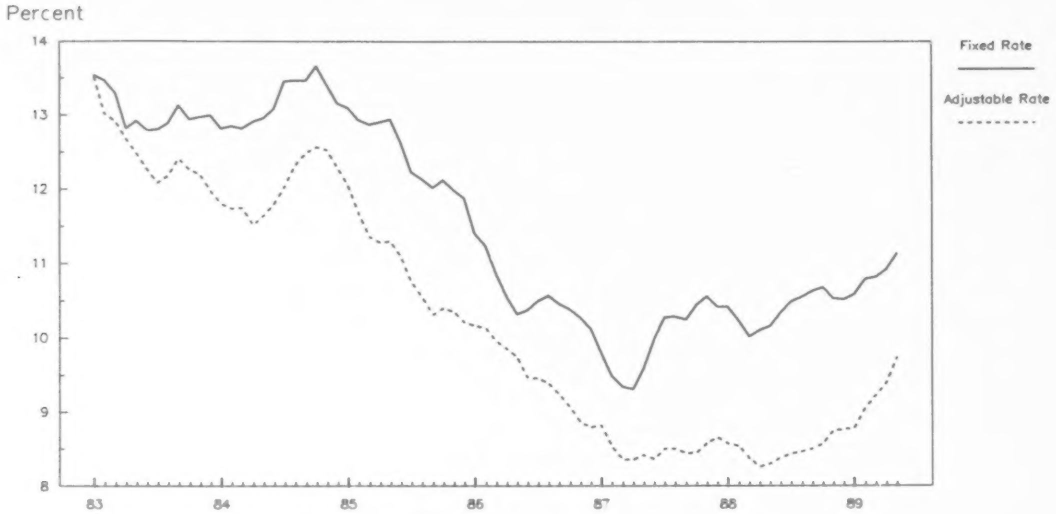


FINANCIAL INDICATORS

Year / Month	Dow Jones Index	NYSE Common Stock Price Index	S & P's Composite Common Stock	U.S. TREASURY RATES (3 Month)	U.S. TREASURY RATES Composite (Lg Term)	CONVENTIONAL HOME MORTAGE RATES Adjustable	CONVENTIONAL HOME MORTAGE RATES Fixed
1980	891.4	68.1	5.3	11.4	10.8		
1981	932.9	74.0	5.2	14.0	12.9		
1982	884.4	68.9	5.8	10.6	12.2	7.4	7.5
1983	1,190.3	92.6	4.4	8.6	10.8	12.5	13.0
1984	1,178.5	92.5	4.6	9.5	12.0	12.0	13.2
1985	1,328.2	108.1	4.2	7.5	10.8	11.0	12.5
1986	1,792.8	136.0	3.5	6.0	8.1	9.5	10.6
1987	2,276.0	161.7	3.1	5.8	8.6	8.5	10.0
1988:5	1,988.9	145.0	3.8	6.3	9.2	8.3	10.2
1988:6	2,104.9	152.7	3.6	6.5	9.0	8.4	10.4
1988:7	2,104.2	152.1	3.7	6.7	9.2	8.4	10.5
1988:8	2,051.3	149.3	3.8	7.1	9.3	8.5	10.6
1988:9	2,080.1	151.5	3.7	7.2	9.1	8.5	10.6
1988:10	2,144.3	156.4	3.6	7.4	8.9	8.6	10.7
1988:11	2,099.0	152.7	3.7	7.8	9.1	8.8	10.5
1988:12	2,148.6	155.4	3.7	8.1	9.1	8.8	10.5
1988	2,060.8	149.9	3.6	6.7	9.0	8.5	10.4
1989:1	2,234.7	160.4	3.5	8.3	9.1	8.8	10.6
1989:2	2,304.3	165.1	3.6	8.5	9.2	9.1	10.8
1989:3	2,283.1	164.6	3.7	8.8	9.3	9.2	10.8
1989:4	2,345.2	169.4	3.6	8.7	9.2	9.4	10.9
1989:5	2,439.5	175.3	3.5	8.4	9.0	9.8	11.1

CONVENTIONAL HOME MORTGAGE RATES

Fixed Rate vs. Adjustable Rate

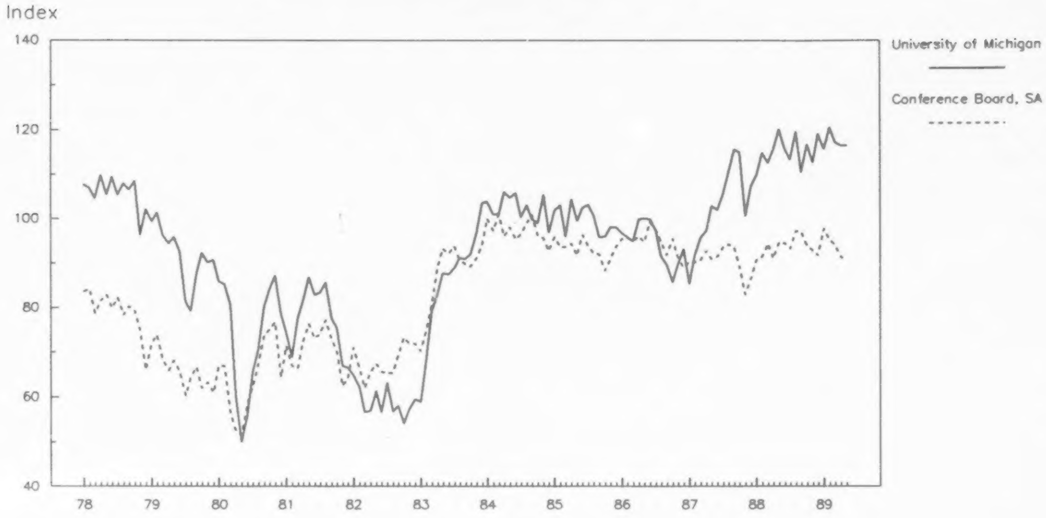


EXCHANGE RATES

Year / Month	FOREIGN EXCHANGE RATES (Units of Foreign Currency = $1.00)					WEIGHTED-AVERAGE EXCHANGE VALUE of U.S. Dollars
	CANADA	FRANCE	GERMANY	JAPAN	UNITED KINGDOM	(March 1973 = 100)
1980	1.17	4.23	1.82	226.53	.43	87.39
1981	1.20	5.43	2.26	220.45	.49	103.26
1982	1.23	6.58	2.43	249.05	.57	116.50
1983	1.23	7.62	2.55	237.45	.66	125.33
1984	1.30	8.74	2.85	237.59	.75	138.34
1985	1.37	8.99	2.94	238.47	.77	143.23
1986	1.39	6.93	2.17	168.50	.68	112.27
1987	1.33	6.01	1.80	144.63	.61	96.95
1988:5	1.24	5.73	1.69	124.79	.53	89.74
1988:6	1.22	5.93	1.76	127.47	.56	92.58
1988:7	1.24	6.22	1.85	133.02	.59	96.53
1988:8	1.22	6.39	1.89	133.77	.59	98.29
1988:9	1.23	6.35	1.87	134.32	.59	97.91
1988:10	1.21	6.20	1.82	128.68	.58	95.10
1988:11	1.22	5.97	1.75	123.20	.55	91.91
1988:12	1.20	6.00	1.76	123.61	.54	91.88
1988	1.23	5.96	1.76	128.14	.56	92.75
1989:1	1.19	6.25	1.84	127.36	.56	95.12
1989:2	1.19	6.30	1.85	127.74	.57	95.77
1989:3	1.20	6.33	1.87	130.55	.58	96.99
1989:4	1.19	6.32	1.87	132.04	.59	97.24
1989:5	1.19	6.58	1.95	137.86	.61	100.81

CONSUMER CONFIDENCE INDICES

University of Michigan (February 1966 = 100)
Conference Board (1985 Average = 100)

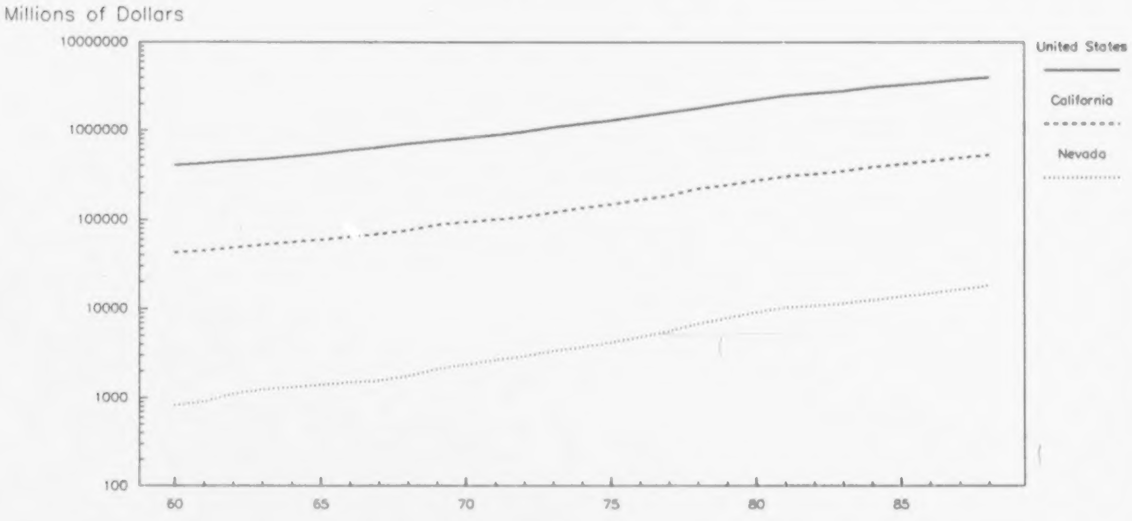


CONSUMER CONFIDENCE INDICES

Year / Month	University of Michigan CONSUMER CONFIDENCE (Feb 1966= 100)	Conference Board INDEX of CONSUMER CONFIDENCE, SA (1985 = 100)
1980	73.8	64.4
1981	77.4	70.7
1982	59.0	68.0
1983	85.7	87.5
1984	102.3	97.5
1985	100.0	93.2
1986	94.7	94.8
1987	102.6	90.6
1988:5	120.2	94.8
1988.6	115.7	94.7
1988:7	113.5	93.4
1988:8	119.7	97.4
1988:9	110.7	97.3
1988:10	116.9	94.1
1988:11	112.9	93.0
1988:12	119.3	91.9
1988	115.2	93.7
1989:1	115.8	97.9
1989:2	120.7	95.4
1989:3	117.4	94.3
1989:4	116.3	91.5
1989:5	116.7	90.7

WESTERN REGION and UNITED STATES

PERSONAL INCOME
United States, Nevada, and California
Semilogarithmic Chart



PERSONAL INCOME: Western Region and United States

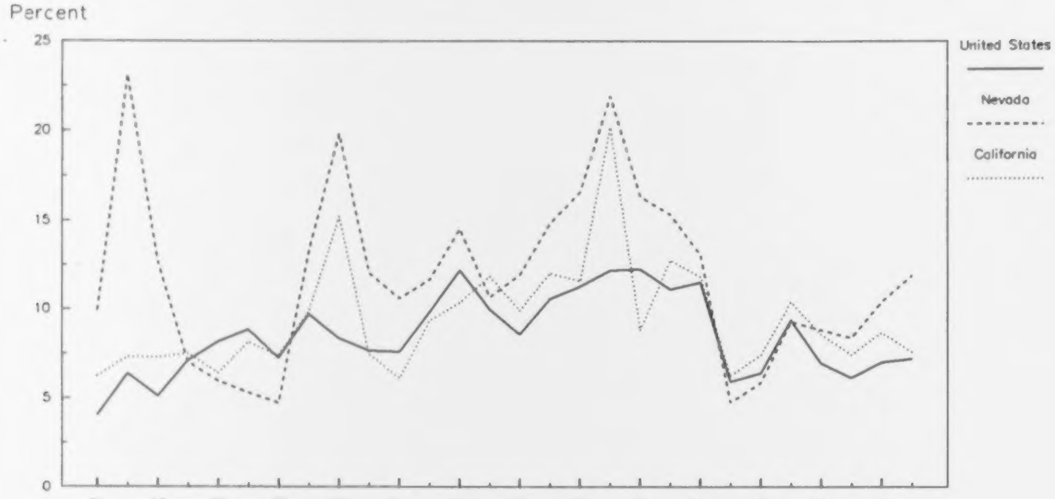
(Millions of Dollars, SA)

Year / Quarter	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1970	1,544.0	6,801.0	95,039.5	3,772.0	2,486.8	2,406.3	8,169.3	3,513.0	14,234.0	825,534.0
1971	1,679.0	7,720.0	100,866.8	4,059.5	2,724.5	2,661.5	8,920.3	3,904.0	14,961.5	888,536.0
1972	1,827.0	8,879.3	110,339.3	4,473.8	3,097.8	2,972.5	10,006.3	4,380.8	16,163.3	976,181.0
1973	2,148.8	10,309.8	121,784.5	4,967.0	3,635.0	3,404.8	11,342.0	4,928.8	18,299.8	1,095,289.0
1974	2,650.3	11,656.8	136,191.5	5,702.5	4,265.3	3,768.8	12,815.8	5,529.5	20,721.8	1,204,899.3
1975	3,780.0	12,364.0	149,697.8	6,158.8	4,548.8	4,219.3	14,071.5	6,155.8	23,258.3	1,308,482.0
1976	4,559.3	13,837.0	167,707.5	6,669.5	5,148.0	4,845.8	16,057.8	7,014.3	26,071.5	1,447,002.0
1977	4,701.3	15,623.0	187,132.0	7,209.5	5,673.3	5,652.0	18,082.3	7,987.5	29,153.3	1,610,363.0
1978	4,791.0	18,549.3	224,937.3	8,042.8	6,579.3	6,891.3	20,822.5	9,230.3	34,250.5	1,806,968.0
1979	5,021.5	21,947.0	244,774.8	9,030.5	7,289.5	8,019.0	23,657.8	10,489.3	39,486.0	2,028,510.3
1980	5,599.5	25,091.5	276,105.5	10,279.0	8,128.8	9,250.0	26,062.5	11,710.3	44,561.8	2,254,076.0
1981	6,448.8	28,339.0	308,729.5	11,051.8	8,945.8	10,458.8	27,889.5	13,124.5	49,259.5	2,514,231.0
1982	7,739.5	29,756.0	328,032.5	11,731.8	9,079.0	10,956.5	28,262.8	14,091.0	51,420.0	2,663,432.0
1983	8,758.5	32,750.5	352,438.8	12,875.3	9,777.8	11,599.8	30,010.3	14,997.8	54,551.3	2,834,385.0
1984	9,139.8	36,800.5	389,180.5	13,628.3	10,357.3	12,678.8	32,302.3	16,426.3	58,415.8	3,101,163.0
1985	9,801.8	40,963.5	422,604.3	14,588.5	10,868.8	13,801.5	33,951.3	17,512.5	62,031.8	3,317,545.0
1986	9,805.0	44,834.3	454,085.3	15,639.0	11,216.8	14,959.5	35,748.0	18,284.5	66,470.3	3,522,203.0
1987:4	9,703.0	50,284.0	511,066.0	17,662.0	11,996.0	17,253.0	39,298.0	19,636.0	73,088.0	3,902,016.0
1987	9,623.8	48,424.8	493,546.0	16,970.3	11,856.0	16,514.8	38,181.8	19,129.3	70,992.5	3,768,696.0
1988:1	9,754.0	50,135.0	511,380.0	17,893.0	12,215.0	17,496.0	39,885.0	19,535.0	74,260.0	3,922,767.0
1988:2	9,957.0	51,027.0	523,352.0	18,264.0	12,535.0	18,105.0	40,780.0	20,080.0	75,727.0	3,995,275.0
1988:3	10,053.0	52,025.0	539,153.0	18,660.0	12,725.0	18,767.0	41,329.0	20,530.0	76,911.0	4,077,502.0
1988:4	10,290.0	53,183.0	550,517.0	19,045.0	13,099.0	19,550.0	42,279.0	21,116.0	79,253.0	4,172,895.0
1988	10,013.5	51,592.5	531,100.5	18,465.5	12,643.5	18,479.5	41,068.3	20,315.3	76,537.8	4,042,109.8

PERSONAL INCOME

United States, Nevada and California, SA

Percent Change from Previous Year



PERSONAL INCOME: Western Region and United States

(Percent change of SA data)

Year / Quarter	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1970	12.35	13.96	7.51	15.09	10.03	12.04	8.57	10.86	4.72	7.70
1971	8.74	13.51	6.13	7.62	9.56	10.61	9.19	11.13	5.11	7.63
1972	8.81	15.02	9.39	10.20	13.70	11.69	12.17	12.21	8.03	9.86
1973	17.61	16.11	10.37	11.03	17.34	14.54	13.35	12.51	13.22	12.20
1974	23.34	13.07	11.83	14.81	17.34	10.69	12.99	12.19	13.24	10.01
1975	42.63	6.07	9.92	8.00	6.65	11.95	9.80	11.33	12.24	8.60
1976	20.62	11.91	12.03	8.29	13.17	14.85	14.12	13.95	12.10	10.59
1977	3.11	12.91	11.58	8.10	10.20	16.64	12.61	13.88	11.82	11.29
1978	1.91	18.73	20.20	11.56	15.97	21.93	15.15	15.56	17.48	12.21
1979	4.81	18.32	8.82	12.28	10.80	16.36	13.62	13.64	15.29	12.26
1980	11.51	14.33	12.80	13.83	11.51	15.35	10.16	11.64	12.85	11.12
1981	15.17	12.94	11.82	7.52	10.05	13.07	7.01	12.08	10.54	11.54
1982	20.02	5.00	6.25	6.15	1.49	4.76	1.34	7.36	4.39	5.93
1983	13.17	10.06	7.44	9.75	7.70	5.87	6.18	6.43	6.09	6.42
1984	4.35	12.37	10.43	5.85	5.93	9.30	7.64	9.52	7.08	9.41
1985	7.24	11.31	8.59	7.05	4.94	8.86	5.10	6.61	6.19	6.98
1986	0.03	9.45	7.45	7.20	3.20	8.39	5.29	4.41	7.16	6.17
1987:4	-0.39	9.19	9.44	9.62	4.28	11.85	7.55	6.60	5.95	8.68
1987	-1.85	8.01	8.69	8.51	5.70	10.40	6.81	4.62	6.80	7.00
1988:1	2.54	6.96	7.26	9.20	5.58	10.53	7.69	4.86	7.44	7.05
1988:2	3.31	6.47	6.90	9.21	5.76	11.43	7.62	5.44	7.53	7.33
1988:3	4.26	7.01	8.53	9.06	5.98	12.18	7.35	6.88	7.82	7.70
1988:4	6.05	5.77	7.72	7.83	9.19	13.31	7.59	7.54	8.44	6.94
1988	4.05	6.54	7.61	8.81	6.64	11.90	7.56	6.20	7.81	7.25

CIVILIAN EMPLOYMENT and UNEMPLOYMENT RATES: Western Region and United States

Year / Month	ALASKA			ARIZONA			CALIFORNIA			HAWAII			IDAHO		
	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemploymen Rates	SA
1978	161.0	11.1		938.0	6.1		10,136.6	7.1		388.0	7.6		391.0	5.6	
1979	166.0	9.3		999.0	5.0		10,566.4	6.2		395.0	6.2		407.0	5.6	
1980	170.0	9.6		1,155.0	6.7		10,794.2	6.8		418.0	4.8		395.0	7.9	
1981	178.0	9.3		1,187.0	6.2		10,937.3	7.4		427.0	5.3		396.0	7.5	
1982	190.0	10.0		1,104.2	9.9		10,967.2	9.9		430.0	6.7		400.0	9.9	
1983	210.0	10.3		1,261.0	9.1		11,094.6	9.7		442.0	6.4		413.0	9.9	
1984	222.0	10.2		1,370.0	4.9		11,631.0	7.8		445.0	5.7		430.0	7.2	
1985	226.0	9.6		1,381.0	6.5		12,047.8	7.3		452.0	5.6		428.0	8.0	
1986	229.0	10.9		1,476.0	6.9		12,442.5	6.7		468.0	4.9		427.0	8.8	
1987	222.0	10.9		1,511.0	6.3		12,937.0	5.8		493.0	3.9		425.9	8.1	
1988:5	223.0	9.4	9.2	1,550.4	6.6	6.7	13,170.7	5.8	6.1	498.1	3.4	3.6	446.0	6.2	6.4
1988:6	229.3	8.6	8.9	1,548.8	7.1	6.4	13,313.3	5.4	5.5	499.4	3.6	3.3	458.1	5.4	5.9
1988:7	234.8	7.6	8.6	1,539.4	7.1	6.4	13,359.4	5.9	5.4	500.2	3.7	3.2	460.5	5.3	5.7
1988:8	233.2	7.6	9.0	1,540.9	7.1	6.8	13,356.5	5.6	5.5	501.1	3.2	2.9	459.7	5.3	5.6
1988:9	224.2	7.3	9.1	1,562.8	7.0	7.1	13,297.9	5.0	5.2	495.6	2.8	2.8	466.8	4.3	5.5
1988:10	219.2	8.4	9.3	1,581.3	6.5	6.8	13,403.9	4.8	4.9	497.7	3.1	3.0	458.6	4.2	5.7
1988:11	215.9	9.0	9.1	1,596.9	5.7	6.0	13,477.8	5.1	5.1	499.5	3.3	3.3	450.6	5.2	5.7
1988:12	218.5	8.7	8.5	1,593.1	5.3	5.7	13,520.0	4.3	4.7	502.5	2.8	3.4	457.5	5.4	5.5
1988	221.4	9.1		1,550.0	6.3		13,292.0	5.3		500.0	3.1		444.3	6.3	
1989:1	211.1	10.4	9.0	1,567.0	5.7	5.9	13,407.0	5.4	5.1	497.3	3.5	3.6	445.3	7.2	5.6
1989:2	211.0	10.1	8.5	1,587.0	5.9	6.0	13,309.0	5.5	5.1	496.9	3.4	3.5	451.1	7.0	5.5
1989:3	210.8	9.5	8.1	1,596.6	5.7	5.8	13,434.0	4.7	4.6	496.2	3.4	3.6	450.8	6.6	5.3
1989:4	215.9	8.5	7.7	1,613.2	5.4	5.4	13,328.0	5.2	5.3	496.9	3.3	3.6	459.7	5.4	4.9
1989:5	221.6	7.7	7.6	1,660.5	4.6	4.7	13,524.0	5.2	5.4	504.4	3.2	3.4	464.1	5.0	5.1

Year / Month	NEVADA			OREGON			UTAH			WASHINGTON			UNITED STATES		
	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA
1978	321.9	4.5		1,124.0	6.0		540.0	3.9		1,684.0	6.9		96,048.8	6.1	
1979	379.8	5.0		1,134.0	6.8		579.0	4.3		1,806.0	6.8		98,826.3	5.8	
1980	402.6	6.3		1,189.0	8.3		594.0	6.3		1,828.0	7.9		99,302.8	7.1	
1981	430.8	7.1		1,207.0	9.9		604.0	6.7		1,806.0	9.5		100,397.3	7.6	
1982	434.0	10.1		1,171.0	11.6		622.0	7.8		1,779.0	12.1		99,526.4	9.7	
1983	437.2	9.9		1,195.8	10.8		628.0	9.3		1,838.0	11.2		100,833.6	9.6	
1984	457.7	7.9		1,210.0	9.4		658.0	6.6		1,857.0	9.5		105,005.3	7.5	
1985	478.5	8.1		1,200.0	8.8		687.0	5.9		1,921.0	8.1		107,149.8	7.2	
1986	500.0	6.0		1,245.0	8.5		709.0	6.0		2,018.0	8.2		109,597.5	7.0	
1987	521.5	6.3		1,301.0	6.2		709.0	6.3		2,085.0	7.6		112,440.4	6.2	
1988:5	553.6	5.3	5.4	1,314.1	6.0	6.2	707.6	5.0	4.9	2,143.4	6.0	6.2	114,222.0	5.4	5.6
1988:6	559.5	5.2	5.3	1,344.8	5.9	6.1	724.4	4.7	4.8	2,159.9	6.2	6.3	116,209.0	5.5	5.4
1988:7	564.4	4.8	5.0	1,352.1	5.9	6.1	723.5	4.9	5.1	2,196.9	6.2	6.3	117,066.0	5.5	5.4
1988:8	564.8	4.5	4.9	1,354.0	5.5	6.0	731.0	5.1	5.4	2,183.5	6.0	6.3	116,737.0	5.4	5.6
1988:9	570.1	4.3	4.7	1,337.5	5.2	5.9	741.9	4.5	4.9	2,180.3	5.7	6.3	115,474.0	5.2	5.4
1988:10	576.4	4.2	4.5	1,343.8	4.8	5.5	739.8	3.9	4.3	2,206.7	5.2	5.9	116,250.0	5.0	5.3
1988:11	575.2	4.2	4.4	1,348.9	4.9	5.0	744.3	3.7	4.2	2,184.2	5.5	5.7	116,314.0	5.2	5.4
1988:12	572.6	4.3	4.1	1,345.0	4.9	4.8	752.1	3.6	3.8	2,188.4	5.5	5.5	115,978.0	5.0	5.3
1988	556.0	5.1		1,326.0	5.8		722.0	4.9		2,153.0	6.2		114,968.4	5.5	
1989:1	559.8	5.9	5.4	1,332.9	6.3	5.5	733.7	4.4	4.1	2,171.4	6.9	6.2	114,786.0	6.0	5.4
1989:2	560.5	6.5	5.8	1,345.6	6.2	5.5	729.3	4.7	4.1	2,162.8	6.8	5.9	115,023.0	5.6	5.1
1989:3	567.7	5.8	5.2	1,350.3	6.2	5.6	728.1	5.5	4.9	2,203.5	6.4	5.8	115,844.0	5.2	5.0
1989:4	576.0	5.2	5.1	1,374.4	5.6	5.5	729.1	5.1	4.7	2,250.1	6.0	5.8	116,347.0	5.1	5.3
1989:5	580.5	5.0	5.0	1,376.6	5.2	5.3	728.1	5.1	5.0	2,307.9	5.4	5.6	117,039.0	5.0	5.2

INDUSTRIAL EMPLOYMENT: Alaska

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	170.9	6.7	14.0	17.2	29.4	10.6	8.1	30.2	17.7	37.1
1981	187.1	8.9	14.1	18.3	33.2	13.0	8.8	33.5	17.5	39.9
1982	201.9	8.9	12.9	18.6	37.7	16.9	9.9	37.0	17.7	42.4
1983	214.4	8.2	12.1	18.8	41.4	20.7	10.7	39.7	17.7	45.1
1984	225.7	8.7	11.3	19.2	44.5	20.4	12.2	43.0	18.1	48.4
1985	230.7	9.5	12.1	18.7	45.8	18.6	12.8	44.8	17.6	50.8
1986	220.7	9.1	12.6	17.9	43.7	13.4	12.4	43.7	17.6	50.4
1987	210.1	8.8	12.9	17.6	41.1	10.1	11.3	42.5	17.9	47.9
1988:5	212.8	9.5	14.3	17.2	42.4	8.9	10.6	43.2	17.8	48.9
1988:6	221.9	10.4	18.1	18.3	44.3	9.9	10.8	45.1	18.3	46.7
1988:7	227.9	10.1	24.4	18.2	44.6	10.6	10.8	45.6	18.5	45.1
1988:8	226.7	10.3	22.2	18.3	44.7	11.0	10.9	45.5	18.5	45.3
1988:9	224.2	9.9	17.5	18.2	43.9	11.1	10.7	44.3	18.4	50.2
1988:10	214.8	9.7	13.6	17.3	42.3	9.9	10.6	42.7	17.8	50.9
1988:11	209.0	9.5	11.9	16.7	41.9	7.9	10.5	42.2	17.8	50.6
1988:12	207.1	9.3	10.9	16.8	42.4	6.7	10.4	42.4	18.0	50.2
1988	212.3	9.5	14.8	17.2	42.0	8.7	10.7	42.9	18.0	48.6
1989:1	199.8	9.4	9.9	16.2	40.1	6.2	10.5	41.3	17.4	48.8
1989:2	203.6	9.8	10.8	16.3	39.7	6.1	10.6	41.9	17.4	51.0
1989:3	206.9	10.1	12.0	16.5	40.2	6.5	10.6	42.2	17.4	51.4
1989:4	213.3	10.3	12.9	18.5	41.6	7.2	10.6	42.9	17.4	51.9
1989:5	220.9	10.3	14.0	22.1	43.2	8.4	10.6	43.8	17.9	50.6

INDUSTRIAL EMPLOYMENT: Arizona

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	1,014.0	21.0	154.4	51.3	243.0	76.6	58.2	207.7	39.1	162.7
1981	1,040.8	25.0	160.6	54.4	253.3	72.0	60.8	215.3	38.2	161.3
1982	1,029.8	17.7	154.5	56.6	252.6	64.7	62.0	221.8	37.8	162.1
1983	1,077.8	14.3	155.8	57.2	260.9	78.6	65.7	242.2	38.3	164.8
1984	1,181.9	13.1	172.8	59.8	286.3	97.0	72.1	273.2	39.2	168.3
1985	1,278.6	11.9	181.6	62.9	311.1	112.1	81.0	299.9	41.4	176.7
1986	1,341.4	10.9	184.1	66.4	325.2	113.6	89.1	325.9	41.5	184.6
1987	1,386.0	11.4	187.4	71.7	340.5	103.1	94.6	345.3	43.0	189.0
1988:5	1,419.6	12.0	190.0	72.4	346.7	93.5	94.0	362.3	43.5	205.2
1988:6	1,391.2	12.1	191.0	72.3	344.9	94.9	93.8	360.9	43.6	177.7
1988:7	1,376.2	12.2	191.0	72.0	343.0	95.2	93.2	359.1	43.6	166.9
1988:8	1,381.5	12.3	190.6	72.0	341.9	95.7	92.8	358.7	43.8	173.7
1988:9	1,406.4	12.2	191.1	71.8	343.5	95.0	92.2	358.2	44.1	198.3
1988:10	1,421.6	12.0	190.8	72.1	348.2	94.8	92.1	361.1	43.9	206.6
1988:11	1,440.4	12.0	190.1	72.7	353.9	93.7	91.6	362.2	44.2	220.0
1988:12	1,434.8	12.1	189.8	73.1	359.3	92.6	91.5	363.2	44.0	209.2
1988	1,410.6	12.0	189.9	72.7	347.5	93.9	93.3	361.2	43.6	196.7
1989:1	1,409.9	12.2	188.9	72.3	352.8	89.3	91.0	362.7	43.5	197.2
1989:2	1,429.7	12.1	189.7	72.9	355.1	88.7	91.5	366.9	43.3	209.5
1989:3	1,441.0	12.1	189.8	72.5	358.7	89.4	92.1	371.2	43.8	211.4
1989:4	1,443.1	12.0	190.0	72.6	360.0	89.2	92.1	371.9	43.9	211.4
1989:5	1,440.7	12.0	189.6	72.6	360.0	90.1	92.3	368.8	44.3	211.0

INDUSTRIAL EMPLOYMENT: California

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	9,848.8	43.5	2,018.2	546.3	2,266.9	428.3	623.1	2,158.8	333.8	1,430.1
1981	9,985.3	49.2	2,032.3	554.8	2,301.6	407.6	642.9	2,240.5	327.6	1,428.8
1982	9,810.3	50.4	1,957.7	542.8	2,275.3	349.0	642.4	2,257.7	327.4	1,407.8
1983	9,965.8	48.1	1,946.8	536.9	2,343.9	369.3	661.7	2,332.2	328.0	1,396.4
1984	10,573.8	50.0	2,065.5	554.6	2,507.4	445.2	694.2	2,509.5	334.4	1,413.0
1985	10,979.1	49.9	2,076.1	568.7	2,626.1	496.2	724.5	2,644.8	343.1	1,449.7
1986	11,258.1	42.6	2,069.7	574.6	2,686.4	531.0	763.7	2,751.3	346.3	1,492.5
1987	11,678.5	41.1	2,107.6	582.6	2,761.4	574.6	800.9	2,926.7	349.7	1,534.1
1988:5	12,048.0	42.8	2,139.5	584.4	2,837.4	599.4	810.2	3,065.4	351.6	1,617.3
1988:6	12,124.0	43.0	2,147.5	588.6	2,868.6	612.4	815.5	3,078.1	353.6	1,616.7
1988:7	12,030.8	43.1	2,153.6	591.6	2,879.5	618.4	816.9	3,078.9	355.4	1,493.4
1988:8	12,041.7	42.8	2,172.1	592.6	2,880.9	629.9	816.9	3,085.4	355.7	1,465.4
1988:9	12,167.5	42.3	2,173.2	593.1	2,890.1	635.8	817.4	3,107.0	355.4	1,553.2
1988:10	12,253.0	41.9	2,166.6	591.8	2,906.1	638.7	816.5	3,124.5	354.7	1,612.2
1988:11	12,310.8	41.8	2,166.4	592.3	2,943.3	635.6	818.0	3,127.9	355.9	1,629.6
1988:12	12,378.3	41.5	2,163.1	592.1	2,998.6	631.1	821.6	3,141.5	362.1	1,626.7
1988	12,075.1	42.3	2,147.9	586.4	2,869.3	607.0	812.8	3,074.9	354.0	1,580.4
1989:1	12,194.9	40.4	2,141.8	581.7	2,915.0	604.7	816.6	3,112.2	358.4	1,624.1
1989:2	12,252.5	41.2	2,156.1	584.8	2,903.6	605.8	819.0	3,137.2	360.3	1,644.5
1989:3	12,320.0	41.0	2,161.4	588.9	2,906.6	611.4	821.2	3,168.0	363.1	1,658.4
1989:4	12,348.9	41.7	2,160.6	589.8	2,906.4	622.6	821.4	3,176.0	361.8	1,668.6
1989:5	12,385.8	41.7	2,161.8	593.4	2,923.0	632.0	824.1	3,176.3	361.2	1,672.3

INDUSTRIAL EMPLOYMENT: Hawaii

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	404.1	0.0	23.6	31.2	105.3	24.0	32.9	98.5	30.0	59.1
1981	404.8	0.0	23.0	31.9	105.5	21.9	31.7	101.9	30.5	58.6
1982	399.4	0.0	22.4	31.2	104.9	17.9	31.6	101.3	31.6	58.8
1983	406.2	0.0	22.4	31.1	109.9	17.9	31.9	105.0	32.1	59.2
1984	412.7	0.0	21.9	32.0	111.4	15.8	31.9	108.0	32.1	59.8
1985	425.8	0.0	21.9	33.2	115.7	17.2	32.0	112.7	32.4	60.9
1986	438.6	0.0	22.1	34.2	118.0	18.7	33.2	118.8	32.1	61.8
1987	460.0	0.0	21.9	36.8	123.8	21.2	33.7	126.5	32.8	63.3
1988:5	477.3	0.0	22.3	37.8	128.2	22.7	34.5	131.0	33.2	67.8
1988:6	478.9	0.0	22.6	38.2	128.4	23.5	35.0	132.1	33.5	65.8
1988:7	478.7	0.0	23.0	37.9	129.4	23.7	35.3	132.1	33.6	63.9
1988:8	478.0	0.0	22.7	38.1	128.8	23.8	35.1	131.9	33.5	64.2
1988:9	473.1	0.0	22.4	38.2	127.7	23.8	35.1	133.4	33.3	59.5
1988:10	480.1	0.0	22.5	38.2	127.3	23.7	34.9	134.5	33.7	65.6
1988:11	484.8	0.0	22.6	38.6	128.7	24.1	35.0	134.3	33.8	67.9
1988:12	490.1	0.0	22.3	38.8	131.0	24.6	35.1	135.5	34.0	69.0
1988	477.1	0.0	22.3	38.0	127.6	23.1	34.8	132.3	33.5	65.7
1989:1	482.9	0.0	22.5	39.0	128.3	24.5	35.1	135.0	33.5	65.3
1989:2	488.0	0.0	22.3	39.0	128.4	25.1	35.4	136.1	33.3	68.5
1989:3	491.1	0.0	21.8	39.3	129.1	25.6	35.5	136.7	33.3	70.0
1989:4	490.4	0.0	21.9	39.3	128.3	26.0	35.6	136.6	33.1	69.7
1989:5	492.7	0.0	22.2	39.6	129.0	26.3	35.6	136.7	33.5	70.1

INDUSTRIAL EMPLOYMENT: Idaho

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	330.0	4.7	53.3	20.1	80.6	17.4	23.4	60.0	13.1	57.5
1981	327.8	5.2	52.7	20.0	80.7	16.7	23.1	60.1	12.5	56.7
1982	312.2	3.8	47.8	19.0	78.0	13.8	22.7	59.3	12.0	55.8
1983	317.9	4.1	50.3	19.1	79.4	13.1	23.0	61.0	11.9	55.9
1984	330.5	4.2	54.8	19.1	83.0	14.6	23.5	62.5	11.8	57.1
1985	335.9	3.8	54.7	19.3	84.2	15.1	23.7	65.1	11.8	58.3
1986	333.6	2.9	52.1	18.5	83.6	14.6	23.9	67.1	11.8	59.1
1987	333.5	2.6	54.1	17.9	84.9	13.5	19.2	68.1	12.0	61.4
1988:5	347.8	3.3	57.5	18.4	86.1	14.0	19.3	71.5	12.3	65.4
1988:6	354.1	3.4	59.6	18.5	87.8	15.7	19.6	73.1	13.6	82.8
1988:7	352.0	3.5	60.1	18.7	88.6	16.3	19.6	73.3	14.4	57.5
1988:8	351.5	3.7	58.7	18.8	88.4	17.1	19.6	74.0	14.4	56.8
1988:9	360.1	3.7	60.2	19.4	88.7	17.1	19.7	73.9	14.3	63.1
1988:10	362.4	3.7	61.0	19.5	89.4	16.8	19.6	73.7	13.3	65.4
1988:11	359.4	3.7	60.2	19.2	89.7	15.9	19.7	73.0	12.9	65.1
1988:12	357.2	3.5	59.8	18.9	90.8	14.1	19.7	73.5	12.5	64.4
1988	348.7	3.3	58.1	18.6	87.0	14.5	19.4	72.1	12.7	64.6
1989:1	347.1	3.4	58.6	18.4	87.3	12.1	19.2	73.2	11.7	63.2
1989:2	346.3	3.5	57.6	18.3	85.8	11.4	19.1	73.9	11.6	65.1
1989:3	350.0	3.6	57.8	18.3	86.7	12.1	19.1	75.0	11.7	65.7
1989:4	355.3	3.7	58.2	18.6	88.0	13.7	19.1	76.0	12.0	66.0
1989:5	359.7	3.8	59.5	18.7	89.1	15.0	19.3	75.8	12.4	66.1

INDUSTRIAL EMPLOYMENT: Nevada

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	400.0	6.2	19.2	24.1	80.3	26.2	17.9	169.2	10.4	46.6
1981	411.1	7.9	20.1	25.1	83.6	25.4	18.3	173.7	9.5	47.6
1982	401.1	6.6	18.8	24.9	79.9	20.0	17.9	174.8	9.7	48.5
1983	402.8	5.8	19.2	24.5	80.2	19.4	18.5	177.2	9.8	48.2
1984	426.0	6.6	21.0	24.9	85.9	21.8	20.0	186.9	10.0	49.0
1985	446.4	6.1	22.0	25.3	90.9	23.9	21.4	196.4	10.5	50.1
1986	468.1	6.3	22.3	26.5	94.7	27.7	22.4	206.6	10.9	50.7
1987	500.2	8.1	23.3	27.8	102.2	30.1	23.4	221.2	11.3	52.8
1988:5	534.3	10.5	24.7	28.8	108.0	35.1	24.4	234.7	11.3	56.8
1988:6	538.8	11.1	25.2	29.1	109.1	37.3	24.6	237.2	11.5	53.7
1988:7	541.4	11.6	25.1	29.1	109.7	38.1	24.8	240.0	11.6	51.4
1988:8	544.3	11.7	25.2	29.3	110.4	38.8	25.0	241.1	11.6	51.2
1988:9	552.4	11.7	25.4	29.5	111.6	40.0	25.1	241.3	11.5	56.3
1988:10	555.4	11.7	25.5	29.5	111.8	40.6	25.2	241.6	11.5	58.0
1988:11	558.9	12.0	25.6	29.9	113.6	40.4	25.2	242.5	11.5	58.2
1988:12	556.2	12.0	25.7	29.8	115.0	40.4	25.3	237.7	11.5	58.8
1988	537.6	11.0	25.1	29.0	109.4	36.3	24.6	235.4	11.4	55.6
1989:1	550.4	12.0	25.6	29.5	111.5	39.0	25.2	238.8	11.7	57.1
1989:2	552.4	12.0	25.8	29.7	111.2	38.7	25.4	238.6	11.7	59.3
1989:3	558.5	12.3	25.9	30.0	112.1	40.0	25.7	240.9	11.7	59.9
1989:4	563.4	12.6	26.1	30.1	113.4	41.0	25.9	242.7	11.8	59.8
1989:5	570.6	12.9	26.3	30.2	115.0	42.3	26.2	245.6	11.8	60.3

INDUSTRIAL EMPLOYMENT: Oregon

(Thousands of Jobs)

									GOVERNMENT	
Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	FEDERAL	STATE / LOCAL
1980	1,044.5	2.3	215.2	60.5	255.5	46.5	70.0	191.4	30.8	172.4
1981	1,018.7	2.2	202.8	59.5	253.4	37.6	68.5	192.2	29.5	173.0
1982	961.1	1.8	185.8	56.8	238.7	28.9	65.0	188.6	29.1	166.4
1983	966.7	1.6	188.8	55.4	242.6	27.0	64.5	194.6	29.0	163.2
1984	1,006.9	1.6	201.1	57.1	253.0	30.2	65.4	204.5	29.3	164.8
1985	1,030.0	1.5	199.3	57.3	258.6	33.1	66.8	215.6	29.6	168.1
1986	1,058.5	1.4	198.4	57.2	267.3	34.3	69.5	230.2	29.6	170.6
1987	1,100.1	1.4	206.2	58.5	276.7	35.3	72.1	244.4	30.5	175.1
1988:5	1,146.6	1.3	211.4	59.8	285.7	39.2	73.3	257.7	31.3	186.9
1988:6	1,163.6	1.4	215.5	60.7	292.0	40.2	74.4	260.4	32.8	186.2
1988:7	1,149.1	1.4	218.4	60.6	295.1	41.6	74.5	262.2	33.1	162.2
1988:8	1,162.6	1.4	225.0	61.6	297.9	43.1	74.8	263.9	33.0	161.9
1988:9	1,174.2	1.4	222.4	61.5	299.3	42.9	74.8	267.1	32.9	171.9
1988:10	1,187.2	1.5	220.6	61.9	301.2	42.7	74.2	267.6	32.7	184.8
1988:11	1,189.1	1.5	215.5	62.2	304.7	39.8	73.9	269.9	32.3	189.3
1988:12	1,183.3	1.4	212.7	62.3	307.2	40.1	74.3	268.3	32.5	184.5
1988	1,152.3	1.4	214.3	60.5	291.3	39.0	73.6	260.6	31.7	179.9
1989:1	1,157.6	1.2	209.0	61.5	296.1	37.4	74.1	263.4	31.4	183.5
1989:2	1,158.4	1.2	207.1	61.8	293.1	36.5	74.3	266.7	30.7	187.0
1989:3	1,170.2	1.3	208.5	62.1	296.5	37.8	74.6	269.9	30.5	189.0
1989:4	1,179.9	1.4	209.6	62.8	299.0	41.7	74.8	272.3	30.8	187.5
1989:5	1,193.3	1.5	211.4	62.9	304.0	43.2	75.1	273.2	31.7	190.3

INDUSTRIAL EMPLOYMENT: Utah

(Thousands of Jobs)

									GOVERNMENT	
Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	FEDERAL	STATE / LOCAL
1980	554.1	18.3	88.6	34.7	129.0	31.9	25.9	99.6	37.3	88.8
1981	557.8	20.2	89.5	34.5	130.2	28.3	26.4	103.7	37.1	87.9
1982	558.9	18.2	85.8	35.4	131.8	26.9	26.6	108.6	37.3	89.1
1983	566.9	14.0	85.5	36.0	133.5	28.8	27.4	112.5	37.1	91.7
1984	601.2	12.8	94.0	36.3	140.8	34.8	29.8	121.1	37.5	94.1
1985	624.4	9.7	94.0	37.0	147.9	35.5	31.1	131.3	39.4	98.4
1986	634.1	7.8	92.0	37.6	152.4	32.2	32.9	138.0	40.4	100.8
1987	640.0	8.0	92.1	37.8	152.8	26.7	33.8	147.4	39.9	101.6
1988:5	657.7	8.6	98.2	38.9	153.6	25.2	33.3	152.8	39.5	107.6
1988:6	664.4	8.5	99.6	39.6	155.5	26.8	33.4	156.1	39.8	105.1
1988:7	654.1	8.2	99.7	40.0	156.6	26.9	33.4	155.9	39.4	94.0
1988:8	660.6	8.0	100.6	40.4	159.0	27.5	33.5	157.8	39.3	94.5
1988:9	674.9	8.1	101.5	40.7	160.5	28.2	33.3	161.1	39.3	102.2
1988:10	675.5	8.1	101.6	40.6	158.7	27.5	32.9	161.6	39.3	105.2
1988:11	680.9	7.9	102.4	41.1	162.2	27.2	32.9	161.3	39.3	106.6
1988:12	682.7	8.0	102.1	41.4	165.2	25.6	33.0	162.7	39.1	105.6
1988	660.4	8.2	99.0	39.6	156.3	25.1	33.3	156.4	39.4	103.4
1989:1	663.2	7.8	100.4	39.5	157.3	21.2	33.0	159.2	39.4	105.4
1989:2	665.4	7.6	101.0	39.8	156.1	20.6	32.9	161.2	39.3	106.9
1989:3	671.4	7.6	100.3	39.3	158.4	21.7	33.2	163.4	39.9	107.6
1989:4	678.0	7.6	100.7	39.3	160.2	23.6	33.2	164.4	40.6	108.4
1989:5	683.1	7.7	101.7	39.5	161.9	25.3	33.3	162.9	40.7	110.1

INDUSTRIAL EMPLOYMENT: Washington

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	1,608.3	3.2	308.7	91.4	381.3	92.6	91.8	308.5	67.9	262.9
1981	1,612.0	3.1	363.3	90.2	379.9	90.3	92.3	318.3	66.5	260.0
1982	1,568.6	3.0	289.0	89.0	385.4	76.2	90.7	316.9	66.3	252.2
1983	1,586.2	2.7	278.4	87.9	393.9	74.2	92.3	332.8	67.6	256.4
1984	1,659.9	2.6	288.1	91.2	411.6	79.6	95.7	356.6	68.9	265.6
1985	1,710.4	2.7	295.5	93.6	420.6	80.6	99.6	375.1	70.1	272.7
1986	1,769.9	2.9	305.1	96.2	436.5	84.5	104.9	391.0	69.2	279.6
1987	1,851.8	3.0	318.4	98.5	457.6	88.9	107.5	420.7	70.6	286.6
1988:5	1,934.1	3.3	337.4	100.6	470.3	94.7	109.4	446.2	71.5	300.7
1988:6	1,961.3	3.4	340.6	102.4	480.5	98.9	110.5	449.9	73.3	301.8
1988:7	1,935.8	3.4	338.6	103.0	480.8	101.6	111.1	446.9	73.2	277.2
1988:8	1,945.0	3.4	343.2	103.8	484.2	104.9	111.4	448.7	73.0	272.4
1988:9	1,972.3	3.5	346.7	104.4	487.1	105.1	111.1	453.4	72.3	288.7
1988:10	1,984.6	3.5	347.1	103.6	486.3	104.7	110.8	453.5	71.7	303.4
1988:11	1,986.2	3.5	347.7	103.4	489.4	99.8	111.1	453.1	71.4	306.8
1988:12	1,984.5	3.4	345.6	102.9	495.5	96.6	111.7	454.0	71.5	303.3
1988	1,935.5	3.3	338.6	101.5	475.2	96.0	109.8	444.3	71.6	295.3
1989:1	1,954.7	3.3	344.1	102.0	479.0	91.3	111.3	450.1	71.1	302.5
1989:2	1,960.8	3.2	344.8	102.2	475.3	90.6	111.6	454.7	71.1	307.3
1989:3	1,983.1	3.4	347.4	103.3	479.8	95.1	112.1	460.9	71.5	309.6
1989:4	2,011.3	3.4	352.3	104.1	490.3	99.4	113.0	466.8	71.7	310.3
1989:5	2,033.3	3.5	357.3	104.7	496.8	103.8	113.9	469.5	72.4	311.4

INDUSTRIAL EMPLOYMENT: United States

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU- FACTURING	TRANS- PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	90,416.8	1,026.8	20,287.2	5,146.6	20,310.5	4,352.6	5,160.6	17,889.8	2,866.6	13,376.3
1981	91,159.8	1,138.7	20,171.4	5,165.2	20,547.1	4,192.7	5,297.5	18,618.2	2,771.8	13,257.3
1982	89,569.1	1,128.1	18,782.4	5,082.8	20,456.4	3,908.3	5,341.6	19,035.1	2,738.4	13,096.0
1983	90,187.9	952.0	18,433.9	4,953.9	20,876.1	3,944.1	5,467.9	19,691.8	2,773.5	13,094.8
1984	94,487.2	965.4	19,379.8	5,158.7	22,097.2	4,379.9	5,688.5	20,795.8	2,807.3	13,215.3
1985	97,515.6	926.6	19,261.1	5,237.8	23,070.3	4,671.5	5,955.4	21,998.7	2,875.3	13,518.8
1986	99,523.9	777.3	18,966.1	5,254.6	23,681.0	4,817.3	6,283.1	23,052.5	2,899.3	13,792.6
1987	102,196.4	721.1	19,024.9	5,384.4	24,378.7	4,996.3	6,548.5	24,195.6	2,943.1	14,071.3
1988:5	105,091.0	739.0	19,354.0	5,556.0	25,245.0	5,237.0	6,656.0	25,216.0	2,957.0	14,393.0
1988:6	105,561.0	740.0	19,400.0	5,582.0	25,353.0	5,308.0	6,679.0	25,472.0	2,951.0	14,428.0
1988:7	105,768.0	740.0	19,448.0	5,598.0	25,435.0	5,330.0	6,684.0	25,561.0	2,951.0	14,379.0
1988:8	105,954.0	739.0	19,425.0	5,605.0	25,471.0	5,340.0	6,689.0	25,662.0	2,956.0	14,403.0
1988:9	106,207.0	734.0	19,431.0	5,618.0	25,510.0	5,365.0	6,692.0	25,737.0	2,989.0	14,633.0
1988:10	106,475.0	729.0	19,505.0	5,631.0	25,573.0	5,366.0	6,708.0	25,826.0	2,989.0	14,503.0
1988:11	106,824.0	722.0	19,557.0	5,658.0	25,676.0	5,413.0	6,725.0	25,947.0	2,989.0	14,575.0
1988:12	107,097.0	719.0	19,589.0	5,670.0	25,730.0	5,430.0	6,741.0	26,070.0	2,990.0	14,551.0
1988	105,578.7	732.6	19,404.2	5,583.6	25,358.6	5,287.7	6,678.7	25,458.5	2,970.8	14,423.9
1989:1	107,442.0	718.0	19,648.0	5,692.0	25,888.0	5,537.0	6,733.0	26,145.0	2,981.0	14,578.0
1989:2	107,711.0	716.0	19,648.0	5,705.0	25,980.0	5,514.0	6,757.0	26,272.0	2,987.0	14,629.0
1989:3	107,888.0	720.0	19,680.0	5,701.0	26,077.0	5,479.0	6,761.0	26,373.0	2,979.0	14,635.0
1989:4	108,101.0	728.0	19,672.0	5,718.0	26,093.0	5,485.0	6,755.0	26,472.0	2,974.0	14,626.0
1989:5	108,308.0		19,661.0							

RESIDENTIAL CONSTRUCTION CONTRACTS: Western Region and United States

(Millions of Dollars)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1980	137.6	1,609.2	8,653.1	569.9	293.7	690.1	879.6	461.7	1,674.8	63,327.0
1981	161.6	1,569.2	7,492.5	377.3	225.5	737.5	677.7	578.9	1,386.8	59,911.0
1982	321.1	1,625.7	5,926.6	372.6	190.8	613.5	486.3	476.4	1,117.5	58,747.9
1983	535.1	2,900.6	11,180.9	365.7	314.5	918.6	708.0	788.1	1,617.6	90,742.3
1984	531.5	3,610.5	13,944.3	383.4	312.9	795.6	782.2	789.3	1,897.7	101,119.1
1985	433.3	3,703.5	15,278.1	408.2	313.9	807.3	718.5	732.3	1,809.9	108,380.3
1986	286.1	3,490.7	19,708.6	515.1	267.3	936.3	705.8	720.7	2,074.8	122,352.0
1987	160.5	2,819.1	19,372.9	572.5	254.5	1,069.1	785.7	633.4	2,140.8	119,426.5
1988:5	15.0	258.3	2,042.6	89.7	23.3	115.2	88.8	58.6	185.2	11,686.0
1988:6	17.8	224.8	2,237.4	70.0	30.7	142.6	69.1	53.4	196.1	11,888.5
1988:7	31.7	205.9	1,651.5	49.5	22.7	88.4	78.0	63.4	247.9	9,912.2
1988:8	9.8	265.7	1,863.1	36.3	31.8	91.1	84.5	50.7	200.1	11,119.2
1988:9	14.6	167.1	1,735.6	60.1	25.2	150.3	90.0	46.6	178.2	10,117.0
1988:10	6.3	167.9	1,866.7	53.3	23.0	112.6	97.7	42.8	204.6	9,996.1
1988:11	8.2	152.5	1,859.7	84.0	20.8	80.3	87.2	51.4	190.8	9,450.0
1988:12	2.8	186.7	1,521.7	50.0	16.4	120.5	84.0	35.4	195.9	8,897.3
1988	126.4	2,508.1	21,296.9	644.2	270.6	1,260.2	933.4	577.1	2,307.5	119,512.7
1989:1	3.0	185.5	1,493.3	33.4	12.3	168.2	64.5	27.3	137.8	7,514.7
1989:2	10.5	159.9	1,350.7	42.4	15.3	241.5	54.3	24.8	136.0	7,137.5
1989:3	2.9	192.9	1,952.2	126.1	26.6	120.9	111.7	55.9	199.7	10,118.1
1989:4	5.9	206.2	1,934.6	46.7	25.7	240.3	101.0	47.1	191.7	10,998.8
1989:5	9.7	199.6	2,140.2	54.1	33.1	94.4	95.5	56.9	220.0	11,388.7

Data Note: Annual values are sums of monthly values.

NON-RESIDENTIAL CONSTRUCTION CONTRACTS: Western Region and United States

(Millions of Dollars)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1980	228.4	1,081.0	6,717.7	289.8	250.4	318.2	608.8	514.7	1,321.3	52,459.0
1981	385.4	980.2	7,194.1	291.6	177.6	413.2	587.0	451.0	1,323.4	59,402.0
1982	491.1	1,117.1	6,932.4	295.4	161.2	294.6	536.5	394.2	1,307.6	59,161.3
1983	718.8	1,065.3	8,195.2	178.1	144.7	322.4	376.2	452.5	1,218.1	64,804.2
1984	695.4	1,547.2	9,691.6	302.2	201.1	281.0	504.7	489.5	1,265.5	73,876.5
1985	594.7	1,891.1	10,440.3	278.2	261.0	430.4	602.0	506.2	1,760.2	82,596.0
1986	399.7	1,841.3	10,524.9	372.5	230.4	587.0	500.1	580.1	1,511.8	83,199.4
1987	263.2	1,933.5	11,574.6	417.2	208.1	619.4	636.4	435.0	1,990.4	92,720.4
1988:5	29.3	195.2	744.1	13.7	27.2	34.8	72.1	53.7	117.8	7,254.2
1988:6	33.1	211.6	920.7	104.1	14.1	59.0	57.6	102.4	145.9	8,567.0
1988:7	49.7	158.4	1,015.4	23.3	27.7	110.4	107.6	12.9	259.5	7,595.0
1988:8	23.2	201.1	1,305.1	76.2	25.2	58.7	71.1	53.1	110.0	8,390.6
1988:9	27.2	125.6	876.0	84.9	20.2	29.4	110.6	21.7	121.4	7,523.6
1988:10	23.7	99.8	953.2	101.1	16.9	72.4	39.9	39.7	97.2	6,939.4
1988:11	5.1	185.0	891.3	80.6	14.7	30.8	54.7	27.5	82.3	6,591.6
1988:12	5.2	93.7	822.1	11.8	11.7	47.3	47.9	33.0	81.4	5,887.7
1988	239.4	1,859.0	10,923.3	647.4	239.9	619.8	723.6	503.7	1,378.3	84,978.8
1989:1	2.0	131.2	875.9	89.1	13.1	26.9	46.4	19.0	68.8	6,081.0
1989:2	2.6	176.4	729.1	26.3	7.5	76.5	45.2	32.5	52.4	5,183.5
1989:3	4.2	134.5	721.2	134.1	16.6	77.1	68.2	59.1	117.6	6,600.2
1989:4	15.6	109.4	866.0	3.5	16.0	88.5	50.2	25.4	87.2	6,509.8
1989:5	15.6	159.1	1,149.0	78.0	11.5	68.3	99.3	42.6	141.6	7,959.2

Data Note: Annual values are sums of monthly values.

NON-BUILDING CONSTRUCTION CONTRACTS: Western Region and United States

(Millions of Dollars)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1980	232.7	497.4	2,263.6	125.2	111.8	147.1	367.2	138.6	1,826.3	32,696.0
1981	441.0	482.7	2,379.1	144.1	141.3	123.5	360.8	131.5	677.9	32,458.0
1982	428.9	1,077.5	2,322.5	192.5	138.6	196.3	342.0	2,367.0	970.1	37,143.2
1983	375.3	1,235.3	2,676.0	146.4	121.5	198.1	397.2	2,532.4	734.3	37,702.2
1984	445.1	689.6	2,529.3	171.1	133.1	211.6	555.2	325.5	738.8	35,829.0
1985	458.5	891.2	3,742.5	130.7	162.0	249.3	292.7	342.8	783.5	40,423.9
1986	399.0	757.0	3,998.5	222.7	156.4	225.8	310.5	241.3	942.2	41,249.8
1987	363.0	832.6	4,145.9	179.2	179.8	245.7	421.1	367.1	931.4	45,798.7
1988:5	9.0	86.7	941.8	13.0	184.3	33.3	42.7	36.7	153.8	5,197.2
1988:6	27.9	98.8	520.8	11.9	15.0	9.2	77.2	43.7	92.2	5,006.1
1988:7	48.8	72.8	367.3	52.1	29.6	11.3	29.4	37.6	96.6	3,872.3
1988:8	156.2	30.8	287.8	21.1	17.9	12.5	41.5	79.5	52.5	3,631.7
1988:9	40.7	60.1	474.9	19.7	23.0	15.0	28.6	9.4	198.8	3,533.4
1988:10	35.3	36.4	307.0	66.5	12.4	13.0	14.5	23.6	27.4	3,377.5
1988:11	13.9	62.1	256.4	41.8	11.0	11.8	16.1	19.4	31.4	2,559.7
1988:12	0.4	64.8	210.6	37.6	4.2	33.4	14.5	7.1	132.8	3,241.7
1988	414.7	766.5	4,503.3	360.9	334.8	225.9	407.2	380.1	983.3	44,953.1
1989:1	1.4	77.0	175.9	25.2	7.3	8.0	36.3	8.0	36.6	2,180.5
1989:2	54.6	78.4	265.2	35.8	17.7	10.3	21.9	7.4	41.4	2,765.9
1989:3	36.5	51.1	389.7	19.7	5.0	37.9	22.7	30.8	66.7	4,361.3
1989:4	12.8	138.0	410.6	31.2	6.2	43.9	37.8	13.7	46.9	4,216.4
1989:5	34.9	82.8	506.4	36.9	11.3	35.9	57.9	60.4	71.9	4,448.5

Data Note: Annual values are sums of monthly values.

RESIDENTIAL BUILDING PERMITS: Western Region

(Number of Units)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON
1980	1,869.0	36,428.0	143,176.0	9,348.0	5,380.0	12,114.0	20,008.0	10,455.0	32,522.0
1981	3,040.0	35,948.0	113,248.0	7,252.0	3,514.0	11,218.0	14,125.0	7,410.0	26,416.0
1982	6,223.0	36,322.0	85,464.0	6,622.0	2,389.0	9,053.0	7,332.0	6,838.0	17,320.0
1983	12,063.0	63,902.0	171,455.0	5,735.0	4,247.0	16,359.0	8,873.0	13,511.0	27,891.0
1984	6,384.0	77,107.0	222,246.0	5,493.0	4,070.0	13,108.0	8,571.0	18,607.0	30,511.0
1985	4,154.0	71,668.0	266,130.0	6,412.0	4,190.0	13,128.0	11,019.0	14,672.0	34,293.0
1986	1,422.0	60,427.0	307,388.0	6,526.0	3,977.0	15,809.0	10,500.0	14,004.0	37,037.0
1987	798.0	39,635.0	243,087.0	6,261.0	3,235.0	15,877.0	11,750.0	7,760.0	37,142.0
1988:5	60.0	2,987.0	21,325.0	537.0	315.0	3,968.0	1,140.0	601.0	3,256.0
1988:6	85.0	3,988.0	25,993.0	721.0	315.0	1,888.0	1,643.0	726.0	3,406.0
1988:7	221.0	2,383.0	19,697.0	803.0	327.0	1,684.0	1,115.0	578.0	4,980.0
1988:8	80.0	3,411.0	24,146.0	701.0	378.0	3,432.0	1,544.0	594.0	4,577.0
1988:9	114.0	2,231.0	18,614.0	608.0	323.0	3,242.0	1,644.0	507.0	5,644.0
1988:10	58.0	2,450.0	24,274.0	700.0	280.0	1,726.0	1,085.0	573.0	3,465.0
1988:11	35.0	2,079.0	22,018.0	681.0	210.0	2,972.0	909.0	402.0	3,073.0
1988:12	31.0	1,906.0	17,694.0	344.0	159.0	3,231.0	1,382.0	304.0	3,419.0
1988	808.0	32,528.0	248,324.0	7,084.0	3,198.0	30,656.0	13,904.0	6,057.0	43,372.0
1989:1	17.0	1,628.0	16,639.0	624.0	94.0	1,985.0	1,528.0	279.0	2,784.0
1989:2	32.0	1,745.0	15,969.0	621.0	160.0	2,924.0	1,425.0	313.0	2,223.0
1989:3	45.0	2,341.0	21,154.0	597.0	356.0	2,473.0	1,223.0	556.0	4,092.0
1989:4	67.0	1,992.0	20,885.0	696.0	378.0	2,075.0	1,210.0	556.0	3,455.0
1989:5	70.0	2,204.0	22,996.0	1,303.0	499.0	2,263.0	2,895.0	594.0	4,106.0

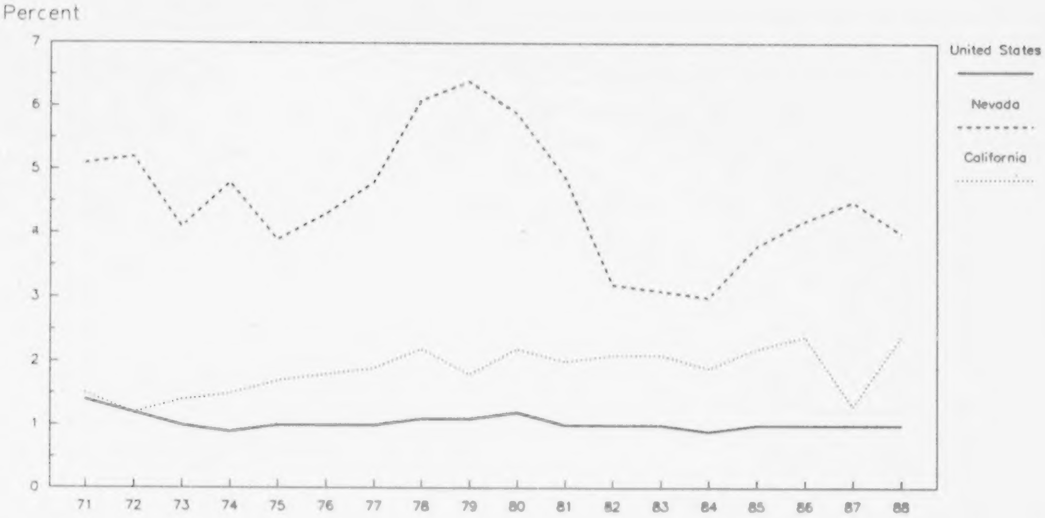
• Data Note: Annual values are sums of monthly values.

STATE OF NEVADA

POPULATION

United States, Nevada and California

Percent Change from Previous Year



POPULATION AND COMPONENTS: Nevada

Year	Population	Births (a)	Deaths (b)	Natural Increase (a-b)	Net Migration	Birth Rate (per 1,000)	Death Rate (per 1,000)
1970	494,990	9,572	3,856	5,716	13,968	19.3	7.8
1971	520,000	9,650	3,980	5,670	20,189	18.6	7.7
1972	546,800	9,033	4,090	4,943	18,930	16.5	7.5
1973	569,200	8,600	4,624	3,976	20,007	15.1	8.1
1974	596,700	8,966	4,338	4,628	21,424	15.0	7.3
1975	620,000	9,056	4,479	4,577	20,422	14.6	7.2
1976	646,800	9,659	4,578	5,081	24,473	14.9	7.1
1977	678,100	10,519	5,622	4,897	31,169	15.5	8.3
1978	719,300	11,304	5,873	5,431	38,703	15.7	8.2
1979	765,300	12,756	6,235	6,521	40,170	16.7	8.2
1980	810,502	13,626	6,859	6,767	36,059	16.8	8.5
1981	850,460	14,439	6,819	7,620	26,672	17.0	8.0
1982	877,380	14,935	7,278	7,657	19,500	17.0	8.3
1983	904,700	14,686	7,317	7,369	19,718	16.2	8.1
1984	932,130	15,263	7,644	7,619	24,191	16.4	8.2
1985	967,820	15,745	8,313	7,432	30,331	16.3	8.6
1986	1,008,030	16,277	8,421	7,856	35,273	16.2	8.4
1987	1,053,230	17,023	8,941	8,082	37,118	16.2	8.5
1988	1,095,880	18,415	9,464	8,951	33,699	16.8	8.6

POPULATION COMPARISON

Year	UNITED STATES		NEVADA		CALIFORNIA *		CLARK COUNTY		WASHOE COUNTY	
	Residents	% Change	Residents	% Change	Residents	% Change	Residents	% Change	Residents	% Change
1970	203,984,000		494,990		20,039,000		277,230		122,574	
1971	206,827,000	1.4	520,000	5.1	20,346,000	1.5	293,000	5.7	128,600	4.9
1972	209,284,000	1.2	546,800	5.2	20,585,000	1.2	307,400	4.9	135,400	5.3
1973	211,357,000	1.0	569,200	4.1	20,869,000	1.4	319,400	3.9	141,000	4.1
1974	213,342,000	0.9	596,700	4.8	21,174,000	1.5	336,900	5.5	147,400	4.5
1975	215,465,000	1.0	620,000	3.9	21,538,000	1.7	351,300	4.3	152,200	3.3
1976	217,563,000	1.0	646,800	4.3	21,936,000	1.8	369,500	5.2	158,700	4.3
1977	219,760,000	1.0	678,100	4.8	22,352,000	1.9	380,000	2.8	167,800	5.7
1978	222,095,000	1.1	719,300	6.1	22,836,000	2.2	412,900	8.7	177,600	5.8
1979	224,567,000	1.1	765,300	6.4	23,257,000	1.8	441,400	6.9	187,200	5.4
1980	227,255,000	1.2	810,502	5.9	23,780,000	2.2	469,362	6.3	195,222	4.3
1981	229,637,000	1.0	850,460	4.9	24,265,000	2.0	494,460	5.3	201,620	3.3
1982	231,996,000	1.0	877,380	3.2	24,783,000	2.1	511,930	3.5	204,800	1.6
1983	234,284,000	1.0	904,700	3.1	25,308,000	2.1	531,210	3.8	210,590	2.8
1984	236,477,000	0.9	932,130	3.0	25,780,000	1.9	546,580	2.9	218,190	3.6
1985	238,736,000	1.0	967,820	3.8	26,358,000	2.2	572,140	4.7	224,420	2.9
1986	241,096,000	1.0	1,008,030	4.2	26,981,000	2.4	600,160	4.9	231,780	3.3
1987	243,419,000	1.0	1,053,230	4.5	27,331,000	1.3	631,920	5.3	236,480	2.0
1988	245,807,000	1.0	1,095,880	4.0	27,996,000	2.4	659,830	4.4	242,800	2.7

* California figures are at January 1, all others are at July 1.

LABOR FORCE COMPONENTS AND UNEMPLOYMENT RATE: Nevada

Year / Month	CIVILIAN LABOR FORCE		EMPLOYMENT RATE		UNEMPLOYMENT		UNEMPLOYMENT		WAGES & SALARIES	
		SA		SA		SA		SA	($ 000)	SA ($ 000)
1980	429,992		402,992		27,000		6.3		1,408,509	
1981	463,025		430,017		33,008		7.1		1,592,085	
1982	483,000		433,992		49,008		10.1		1,638,885	
1983	486,008		438,000		48,008		9.9		1,700,372	
1984	499,992		461,000		38,992		7.8		1,859,592	
1985	520,992		478,992		42,000		8.1		2,013,998	
1986	532,008		500,008		32,000		6.0		2,182,515	
1987	557,008		522,008		35,000		6.3		2,430,662	
1988:5	584,800	581,833	553,600	550,110	31,200	31,661	5.3	5.6		
1988:6	590,200	586,192	559,500	554,905	30,700	30,875	5.2	5.4	2,655,869 *	2,668,196*
1988:7	593,000	588,700	564,400	558,937	28,600	29,407	4.8	5.0		
1988:8	591,700	589,535	564,800	559,927	26,900	28,908	4.5	4.9		
1988:9	595,500	593,069	570,100	564,143	25,400	28,048	4.3	4.8	2,816,967	2,806,210
1988:10	601,600	599,702	576,400	571,997	25,200	27,358	4.2	4.5		
1988:11	600,500	599,024	575,200	571,991	25,300	26,225	4.2	4.3		
1988:12	598,500	598,896	572,600	573,183	25,900	24,844	4.3	4.0	3,011,296	2,954,821
1988	585,992		555,983		30,008		5.1		2,753,065	
1989:1	595,000	603,037	559,800	571,494	35,200	33,093	5.9	5.2		
1989:2	599,200	604,940	560,500	571,710	38,700	35,152	6.5	5.8		
1989:3	602,400	606,716	567,700	575,002	34,700	31,617	5.8	5.4		
1989:4	607,700	609,226	576,000	578,073	31,700	31,035	5.2	5.1		
1989:5	610,800	608,040	580,400	577,156	30,400	30,846	5.0	5.3		

* Figures available on a quarterly basis.

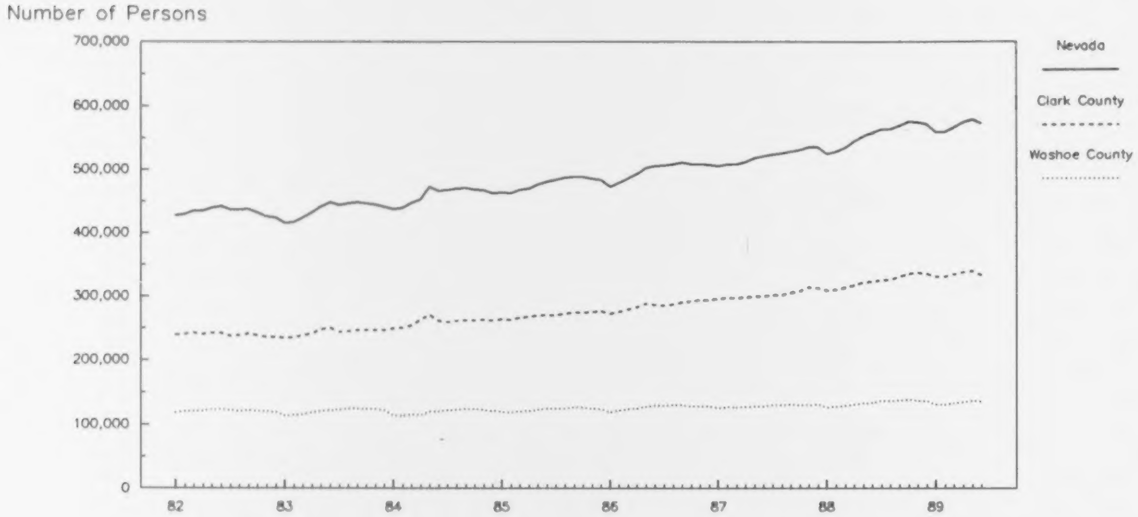
INDUSTRIAL EMPLOYMENT: Nevada

Year/ Month	Mining	Manufacturing	Transportation	Public Utilities	TRADE		
					Wholesale	Retail	TOTAL
1980	6,217	19,158	12,883	11,175	13,167	67,142	80,308
1981	7,850	20,075	13,233	11,875	14,075	69,542	83,617
1982	6,617	18,767	12,950	11,967	13,708	66,175	79,883
1983	5,842	19,167	12,950	11,558	13,658	66,558	80,217
1984	6,575	21,042	13,525	11,392	14,742	71,150	85,892
1985	6,075	21,958	13,983	11,283	15,842	75,033	90,875
1986	6,308	22,258	15,150	11,392	16,708	78,025	94,733
1987	8,133	23,258	16,258	11,533	18,817	83,425	102,242
1988:5	10,500	24,700	16,900	11,900	19,900	88,100	108,000
1988:6	11,100	25,200	17,100	12,000	20,100	89,000	109,100
1988:7	11,600	25,100	17,100	12,000	20,200	89,500	109,700
1988:8	11,700	25,200	17,300	12,000	20,300	90,100	110,400
1988:9	11,700	25,400	17,400	12,100	20,800	90,800	111,600
1988:10	11,700	25,500	17,400	12,100	20,800	91,000	111,800
1988:11	12,000	25,600	17,600	12,300	20,900	92,700	113,600
1988:12	12,000	25,700	17,700	12,100	20,800	94,200	115,000
1988	10,967	25,067	17,033	11,967	20,250	89,158	109,408
1989:1	12,000	25,600	17,500	12,000	20,900	90,600	111,500
1989:2	12,000	25,800	17,700	12,000	21,000	90,200	111,200
1989:3	12,300	25,900	18,000	12,000	21,200	90,900	112,100
1989:4	12,600	26,100	18,000	12,100	21,300	92,100	113,400
1989:5	12,700	26,300	18,300	12,000	21,300	93,500	114,800

Year / Month	SERVICE					GOVERNMENT		
	Construction	F.I.R.E.	Hotels & Gaming	Other	TOTAL	Federal	State	TOTAL
1980	26,192							
1981	25,375	18,275	114,792	58,942	173,733	9,500	67,092	57,092
1982	19,950	17,942	114,525	60,300	174,825	9,717	68,342	58,208
1983	19,350	18,508	114,750	62,475	177,225	9,800	68,225	58,008
1984	21,808	19,950	120,058	66,792	186,850	9,983	70,050	58,933
1985	23,925	21,400	125,483	70,942	196,425	10,450	71,617	60,517
1986	27,733	22,383	128,925	77,658	206,583	10,883	73,350	61,550
1987	30,050	23,400	137,667	83,550	221,217	11,292	76,433	64,083
1988:5	35,100	24,400	145,800	88,900	234,700	11,300	83,300	68,100
1988:6	37,300	24,600	147,100	90,100	237,200	11,500	76,300	65,200
1988:7	38,100	24,800	149,900	90,100	240,000	11,600	71,400	63,000
1988:8	38,800	25,000	150,300	90,800	241,100	11,600	71,100	62,800
1988:9	40,000	25,100	149,500	91,800	241,300	11,500	81,800	67,800
1988:10	40,600	25,200	149,400	92,200	241,600	11,500	85,400	69,500
1988:11	40,400	25,200	149,300	93,200	242,500	11,500	85,800	69,700
1988:12	40,400	25,300	145,600	92,100	237,700	11,500	86,900	70,300
1988	36,283	24,550	145,800	89,617	235,417	11,375	80,667	66,950
1989:1	39,000	25,200	146,200	92,600	238,800	11,700	83,200	68,800
1989:2	38,700	25,400	146,300	92,300	238,600	11,700	87,400	71,000
1989:3	40,000	25,700	147,700	93,200	240,900	11,700	88,300	71,600
1989:4	41,000	25,900	149,300	93,400	242,700	11,800	88,200	71,600
1989:5	42,600	26,100	151,200	94,300	245,500	11,700	88,800	71,900

TOTAL CIVILIAN EMPLOYMENT

Nevada, Clark County and Washoe County



TAXABLE SALES, GAMING REVENUES, PERSONAL INCOME: Nevada

Year/ Quarter	TAXABLE SALES ($ 000)	TAXABLE SALES % Change	GAMING REVENUES ($ 000)	GAMING REVENUES % Change	PERSONAL INCOME ($ 000)	PERSONAL INCOME % Change
1980	6,382,474	3.5	2,383,418	12.4	9,250.0	15.4
1981	6,741,716	5.6	2,533,389	6.3	10,458.8	13.1
1982	6,539,310	-3.0	2,627,430	3.7	10,956.5	4.8
1983	6,853,869	4.8	2,846,509	8.3	11,599.8	5.9
1984	7,624,718	11.2	3,075,126	8.0	12,678.8	9.3
1985	8,384,795	10.0	3,314,433	7.8	13,801.5	8.9
1986	9,163,503	9.3	3,482,097	5.1	14,959.5	8.4
1987	10,224,237	11.6	3,925,147	12.7	16,514.8	10.4
1988:1	2,601,572	16.5	1,034,985	8.1	17,496.0	10.5
1988:2	2,938,700	14.0	1,050,918	7.2	18,105.0	11.4
1988:3	3,059,079	15.5	1,131,090	8.9	18,767.0	12.2
1988:4	3,169,088	14.7	1,050,397	10.6	19,550.0	13.3
1988	11,768,439	13.1	4,267,390	8.0	18,478.5	11.9
1989:1	3,137,524	20.6	1,098,075	6.1		
1989:2	3,299,902	12.3				

Data Note: Annual values for Taxable Sales and Gaming Revenues are sums of quarterly values.

AVERAGE WEEKLY HOURS: Nevada

Year/ Month	Mining	Construction	Manufacturing	Durable Goods	Stone/ Clay/ Glass	Primary Metal Industry	Non Durable Goods	Printing & Publishing	Communications Electric/Gas/ Sani Service	Wholesale Retail Trade*
1980	40.2	35.1	38.2	39.3	39.1	39.2	35.9	34.1	40.7	33.8
1981	41.3	35.8	38.6	39.3	39.4	42.5	37.0	35.6	40.2	34.0
1982	41.2	34.9	37.3	37.8	37.9	40.8	36.6	36.0	39.8	34.1
1983	43.0	35.4	38.8	39.0	38.9	41.4	38.3	37.8	40.1	34.2
1984	42.8	35.9	39.8	40.1	37.7	41.4	39.2	39.0	40.7	34.1
1985	42.9	36.0	41.4	40.8	40.1	40.9	39.5	38.5	40.9	34.2
1986	42.8	37.2	40.2	41.1	41.6	39.9	38.4	37.5	40.4	33.8
1987	42.8	36.0	40.3	41.5	41.1	41.7	38.3	37.3	40.3	34.4
1988:5	47.1	36.5	39.6	40.8	39.5	39.8	37.7	37.5	40.7	34.8
1988:6	47.3	37.6	39.0	40.3	41.0	40.2	36.9	36.4	40.9	35.2
1988:7	47.9	38.0	39.8	41.0	39.5	40.8	37.9	35.8	40.1	35.0
1988:8	42.1	37.4	39.8	40.6	41.0	40.4	38.3	37.5	39.2	35.2
1988:9	42.3	38.3	39.2	40.2	40.6	41.4	37.7	37.1	41.0	34.3
1988:10	41.4	37.9	39.0	39.9	39.8	42.2	37.4	33.1	40.5	34.7
1988:11	41.6	35.5	40.3	41.3	40.7	40.5	38.7	37.5	41.3	34.8
1988:12	41.8	37.6	43.9	43.4	45.3	41.5	39.2	36.3	40.1	35.2
1988	43.9	36.9	39.7	40.9	40.8	40.4	37.9	36.3	40.6	34.7
1989:1	42.8	36.8	40.3	41.8	42.7	38.0	37.8	36.1	40.6	34.7
1989:2	42.2	36.1	40.3	42.1	44.3	41.7	37.3	35.1	40.9	34.8
1989:3	43.0	37.3	40.9	43.2	43.9	40.9	37.0	34.0	40.9	34.9
1989:4	44.6	38.1	41.1	42.3	45.5	40.3	38.9	36.4	41.8	35.3
1989:5	42.7	37.2	41.6	43.5	46.5	41.4	38.3	36.7	40.9	35.1

* Excluding Food & Drink

AVERAGE HOURLY EARNINGS: Nevada

Year/ Month	Mining	Construction	Manufacturing	Durable Goods	Stone/ Clay/ Glass	Primary Metal Industry	Non Durable Goods	Printing & Publishing	Communications Electric/Gas/ Sani Service	Wholesale & Retail Trade *
1980	9.40	14.09	7.72	8.00	8.82	11.55	7.28	6.88	8.57	6.74
1981	10.69	15.92	8.42	8.87	9.97	12.93	7.52	7.43	9.78	7.10
1982	11.53	17.03	8.80	9.26	10.95	13.28	7.88	7.92	10.80	7.58
1983	12.27	16.99	9.02	9.43	11.09	14.05	8.21	8.26	11.76	7.82
1984	12.87	16.87	9.12	9.49	11.95	15.56	8.37	8.50	12.41	8.09
1985	13.24	16.19	9.15	9.41	11.92	14.49	8.62	8.89	13.00	8.37
1986	14.03	16.19	9.36	9.64	12.20	14.74	8.79	9.46	13.80	8.48
1987	14.42	16.31	9.75	10.00	12.79	15.54	9.30	9.85	14.18	8.82
1988:5	14.05	16.39	10.00	10.19	14.86	15.11	9.66	10.04	14.65	9.08
1988:6	13.93	16.30	10.00	10.29	14.78	15.38	9.50	9.96	14.57	9.13
1988:7	14.01	16.56	10.06	10.28	14.93	15.37	9.67	9.89	14.61	9.20
1988:8	14.66	16.39	10.21	10.41	15.08	15.33	9.87	10.45	14.46	9.19
1988:9	14.69	16.40	10.19	10.46	15.40	15.37	9.72	10.15	14.72	9.35
1988:10	14.85	16.12	10.43	10.67	15.01	17.25	10.02	10.91	14.72	9.22
1988:11	15.02	16.08	10.14	10.47	14.88	14.87	9.57	10.04	15.08	9.24
1988:12	15.00	15.92	10.48	10.51	14.77	14.76	9.60	9.67	14.66	9.11
1988	14.56	16.21	10.08	10.28	14.63	15.36	9.71	10.16	14.63	9.12
1989:1	15.59	16.10	10.18	10.43	14.44	16.81	9.71	9.96	15.00	9.30
1989:2	15.32	16.23	10.19	10.53	14.52	15.94	9.56	10.35	15.09	9.21
1989:3	15.82	16.23	10.12	10.23	14.36	15.62	9.89	10.62	14.99	9.36
1989:4	15.84	16.46	10.22	10.46	13.68	14.88	9.79	10.45	15.19	9.37
1989:5	15.83	16.52	10.27	10.56	13.97	14.88	9.69	10.21	15.45	9.27

* Excluding Food & Drink

CONSTRUCTION - Residential Permits: NEVADA

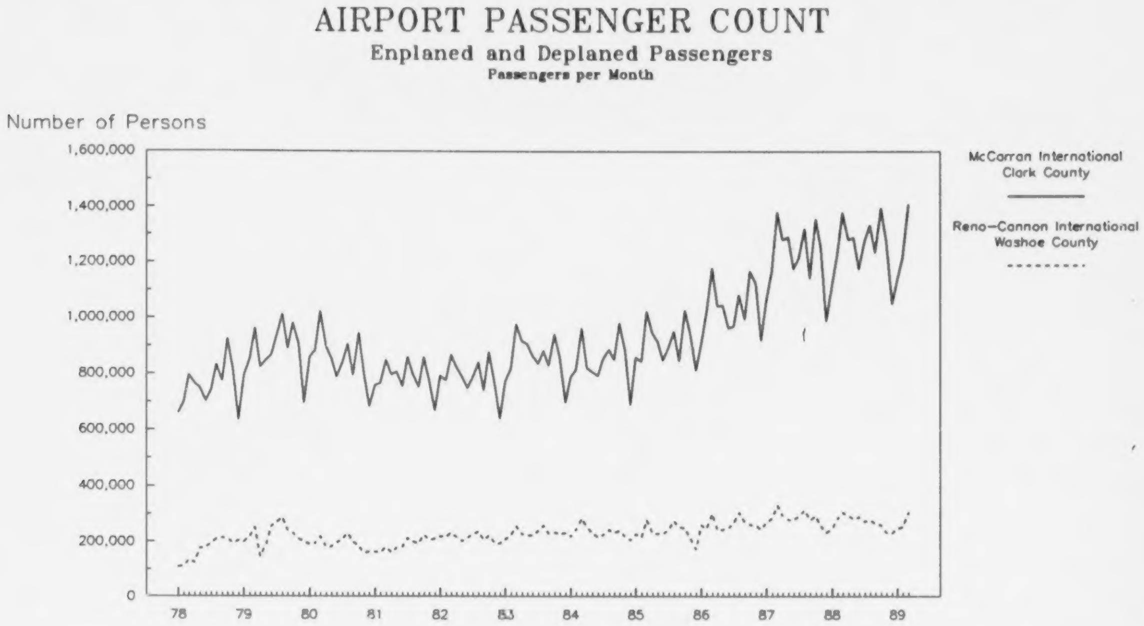
Year/ Month	UNITS		VALUATIONS		
	TOTAL	SINGLE FAMILY	TOTAL ($ 000)	Single Family ($ 000)	Non-Residential ($ Millions)
1980	11,752	6,275	457,871	320,138	511.4
1981	10,267	5,793	370,555	262,018	443.8
1982	8,138	4,364	293,128	210,192	257.9
1983	15,982	8,426	572,296	396,795	456.9
1984	13,749	6,698	89,447	393,717	442.0
1985	14,004	7,385	593,602	414,092	496.4
1986	15,655	9,940	758,242	593,747	592.8
1987	16,345	10,178	785,850	611,136	540.5
1988:3	3,099	962	119,620	59,065	54.0
1988:4	2,447	1,007	124,812	70,542	46.8
1988:5	3,968	1,414	159,474	82,303	61.6
1988:6	1,888	750	94,595	52,423	98.2
1988:7	1,684	951	85,135	60,291	37.4
1988:8	3,432	1,208	132,179	72,564	41.6
1988:9	3,242	1,704	40,639	37,731	46.4
1988:10	1,726	981	86,731	61,853	69.5
1988:11	2,972	1,049	112,377	58,731	69.3
1988:12	3,231	1,266	133,195	77,182	51.4
1988	30,656	12,833	1,225,258	726,323	646.5
1989:1	1,985	880	89,341	54,715	61.0
1989:2	2,924	1,842	130,433	98,304	68.8
1989:3	2,473	1,081	111,604	67,494	178.7

Data Note: Annual values are sums of monthly values.

HIGHWAY TRAFFIC COUNT - (Both directions of travel)

Year/ Month	VEHICLES PER DAY			
	Interstate-15 at Jean California Border	Interstate-15 at Apex East of Las Vegas	US Highway 50 South Tahoe California Border	Interstate-80 at Wells East of Elko
1980	4,833,359	2,526,281	11,256,666	1,077,094
1981	5,166,067	2,846,804	11,339,881	1,180,627
1982	5,238,269	2,958,128	10,869,896	1,095,956
1983	5,452,274	2,900,563	10,733,350	1,093,691
1984	5,727,717	2,981,679	11,631,651	1,168,159
1985	5,918,699	3,144,547	11,735,774	1,218,786
1986	6,219,637	3,241,187	12,147,053	1,285,330
1987	6,598,336	3,593,780	12,463,463	1,407,533
1988:3	539,399	297,524	1,026,845	99,922
1988:4	560,018	305,011	920,261	111,721
1988:5	630,944	320,001	1,033,849	134,734
1988:6	623,032	363,038	1,137,292	175,736
1988:7	732,282	407,187	1,325,126	189,569
1988:8	705,898	394,039	1,360,771	193,865
1988:9	608,845	331,163	1,152,838	160,625
1988:10	584,957	328,490	1,035,853	146,020
1988:11	584,883	292,275	855,070	112,401
1988:12	581,305	303,983	933,107	97,799
1988	7,130,132	3,850,896	12,637,785	1,578,468
1989:1	549,544	270,635	960,376	89,308
1989:2	484,957	248,672	880,440	79,164
1989:3	642,397	341,544	1,046,660	111,179

Data Note: Annual values are sums of monthly values.



AIRPORT PASSENGER COUNT
(Total Enplaned and Deplaned Passengers)

Year/ Month	McCarran International	% Change	Reno-Cannon International	% Change
1980	10,302,106		2,523,875	
1981	9,469,727	-8.1	2,500,592	-0.9
1982	9,438,646	-0.3	2,597,811	3.9
1983	10,312,842	9.3	2,794,462	7.6
1984	10,141,809	-1.7	2,828,742	1.2
1985	10,924,047	7.7	2,834,673	0.2
1986	12,428,748	13.8	3,170,619	11.9
1987	14,644,962	17.8	3,422,239	7.9
1988:3	1,379,401	-0.2	306,183	-8.0
1988:4	1,282,966	0.1	293,502	-0.7
1988:5	1,287,889	-0.2	284,181	1.3
1988:6	1,177,388	0.1	290,950	3.4
1988:7	1,279,314	5.2	274,352	-5.7
1988:8	1,334,108	0.9	280,399	-10.9
1988:9	1,235,519	8.2	267,333	-4.1
1988:10	1,396,632	2.9	261,669	-11.3
1988:11	1,276,007	1.9	234,827	-8.6
1988:12	1,050,657	6.1	232,124	-1.2
1988	15,044,531	2.7	3,257,248	-4.8
1989:1	1,138,306	1.8	247,432	0.0
1989:2	1,217,653	-0.7	255,284	-10.3
1989:3	1,408,920	2.1	307,261	0.4

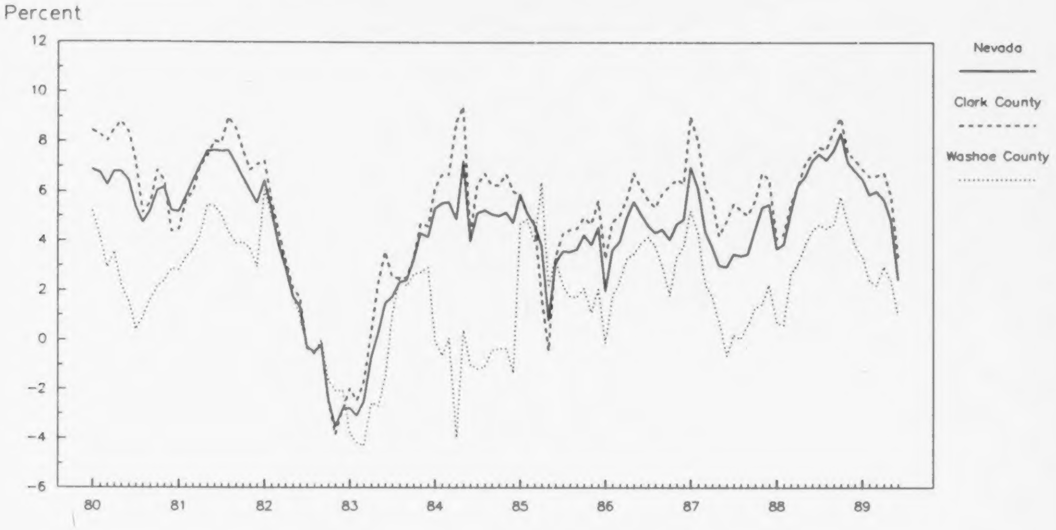
Data Note: Annual values are sums of monthly values.

METROPOLITAN AREAS

TOTAL CIVILIAN EMPLOYMENT

Nevada, Clark County and Washoe County

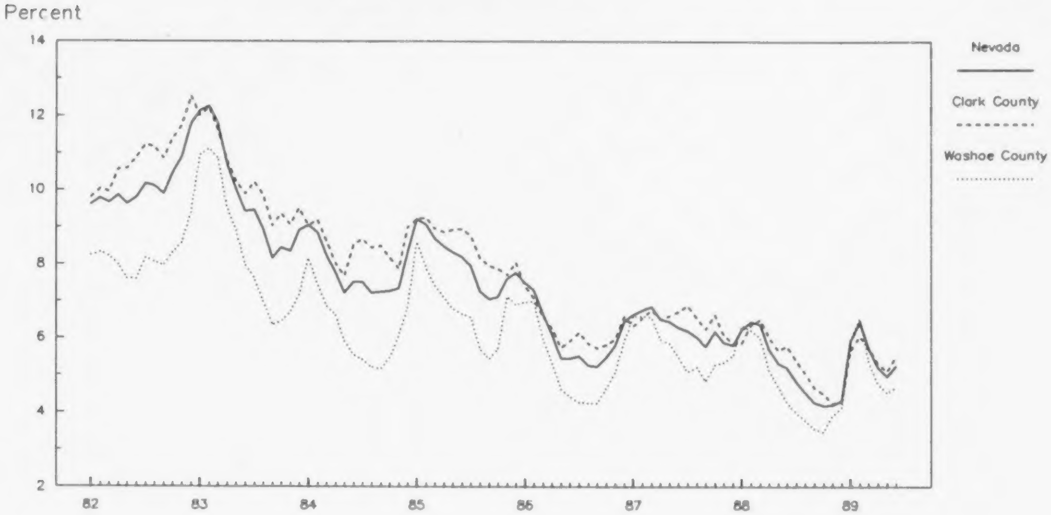
Percent Change from Year-Ago-Month



LABOR FORCE COMPONENTS and UNEMPLOYMENT RATE: Clark County

Year / Month	CIVILIAN LABOR FORCE		EMPLOYMENT		UNEMPLOYMENT		UNEMPLOYMENT RATE		WAGES & SALARIES	
		SA		SA		SA		SA	($ 000)	SA ($ 000)
1980	237,708		221,492		16,217		6.8		3,060,333	
1981	257,767		237,325		20,442		7.9		3,459,795	
1982	269,317		239,958		29,358		10.9		3,555,355	
1983	272,067		244,000		28,067		10.3		3,748,609	
1984	284,450		260,325		24,125		8.5		4,061,442	
1985	296,275		270,900		25,375		8.6		4,416,837	
1986	305,392		286,267		19,125		6.3		4,854,194	
1987	324,617		303,575		21,042		6.5		5,484,126	
1988:5	341,700	339,913	322,300	320,361	19,400	19,698	5.7	6.0		
1988:6	343,600	342,959	323,700	323,671	19,900	19,392	5.8	5.9	1,497,185 *	1,498,633 *
1988:7	344,500	344,496	325,900	326,635	18,600	18,129	5.4	5.3		
1988:8	343,600	345,515	326,200	327,700	17,400	17,851	5.1	5.2		
1988:9	348,000	348,388	331,700	331,060	16,300	17,245	4.7	4.9	1,571,574	1,588,571
1988:10	352,700	351,665	336,800	335,509	15,900	16,780	4.5	4.6		
1988:11	353,000	352,007	338,000	335,651	15,000	15,561	4.3	4.3		
1988:12	351,800	351,070	336,700	335,129	15,100	14,588	4.3	4.0	1,726,719	1,693,211
1988	342,883		324,525		18,358		5.4		6,236,953	
1989:1	351,200	353,124	331,300	333,454	19,900	19,848	5.7	5.4		
1989:2	353,100	354,336	331,700	334,035	21,400	20,782	6.1	5.8		
1989:3	355,500	355,858	335,000	336,491	20,500	19,383	5.8	5.7		
1989:4	358,600	358,184	339,500	339,280	19,100	18,969	5.3	5.4		
1989:5	359,600	358,097	341,200	339,545	18,400	18,688	5.1	5.4		

* Figures available on a quarterly basis



UNEMPLOYMENT RATES
Nevada, Clark County and Washoe County, SA
Unemployment as a Percent of Labor Force

LABOR FORCE COMPONENTS and UNEMPLOYMENT RATE: Washoe County

Year / Month	CIVILIAN LABOR FORCE		EMPLOYMENT		UNEMPLOYMENT		UNEMPLOYMENT RATE		WAGES & SALARIES	
		SA		SA		SA		SA	($ 000)	SA ($ 000)
1980	121,983		115,442		6,542		5.4		1,593,378	
1981	127,292		120,150		7,142		5.6		1,730,562	
1982	132,383		121,517		10,867		8.2		1,774,765	
1983	132,075		121,017		11,058		8.4		1,837,658	
1984	128,008		120,050		7,958		6.2		2,010,233	
1985	132,700		123,642		9,058		6.8		2,158,631	
1986	134,242		127,233		7,008		5.2		2,326,948	
1987	137,083		129,275		7,808		5.7		2,541,023	
1988:5	140,200	137,533	133,600	130,592	6,600	6,875	4.7	5.0		
1988:6	140,700	137,674	134,700	130,539	6,000	7,339	4.3	4.7	673,384 *	682,768*
1988:7	142,200	138,236	136,500	131,749	5,700	6,886	4.0	4.5		
1988:8	141,900	141,031	136,500	133,589	5,400	7,115	3.8	4.4		
1988:9	142,700	138,453	137,600	131,656	5,100	6,974	3.6	4.3	713,415	705,797
1988:10	143,400	136,675	138,400	128,497	5,000	7,794	3.5	4.0		
1988:11	142,800	137,604	137,200	129,568	5,600	8,010	3.9	4.0		
1988:12	142,500	138,456	136,600	130,111	5,900	8,651	4.1	3.7	734,913	719,750
1988	140,492		134,008		6,483		4.6		2,766,811	
1989:1	139,700	137,950	131,400	130,458	8,300	7,450	5.9	4.6		
1989:2	140,500	139,472	131,300	132,087	9,200	7,295	6.6	5.5		
1989:3	140,700	139,697	133,100	132,732	7,600	6,800	5.4	4.9		
1989:4	142,200	140,932	135,400	134,489	6,800	6,344	4.8	4.7		
1989:5	143,300	141,306	136,800	135,548	6,500	5,623	4.6	4.9		

* Figures available on a quarterly basis

INDUSTRIAL EMPLOYMENT: Clark County

(Number of Jobs)

Year/ Month	Mining	Manufacturing	Transportation	Public Utilities	TRADE		
					Wholesale	Retail	TOTAL
1980	475	6,858	7,700	5,425	6,167	39,625	45,792
1981	508	7,283	8,008	5,825	6,450	41,608	48,058
1982	425	6,617	7,800	6,083	6,342	39,092	45,433
1983	300	7,092	7,842	5,958	6,667	39,308	45,975
1984	300	7,458	8,108	6,075	7,483	41,333	48,817
1985	242	7,792	8,383	6,025	8,308	43,867	52,175
1986	300	8,050	8,917	5,983	8,950	45,950	54,900
1987	283	8,700	9,658	6,058	10,100	50,200	60,300
1988:5	200	9,300	9,900	6,400	10,700	53,100	63,800
1988:6	200	9,400	10,000	6,400	10,700	53,000	63,700
1988:7	200	9,500	9,900	6,400	10,800	53,100	63,900
1988:8	200	9,700	10,000	6,400	10,800	53,000	63,800
1988:9	200	9,800	10,100	6,500	11,200	53,500	64,700
1988:10	200	9,900	10,100	6,500	11,300	53,900	65,200
1988:11	200	9,900	10,300	6,700	11,400	55,100	66,500
1988:12	200	9,900	10,400	6,500	11,300	56,200	67,500
1988	200	9,533	9,942	6,417	10,933	53,333	64,267
1989:1	200	9,800	10,300	6,400	11,300	54,300	65,600
1989:2	200	10,000	10,400	6,500	11,400	54,400	65,800
1989:3	200	10,000	10,500	6,500	11,500	54,500	66,000
1989:4	200	10,200	10,500	6,600	11,600	55,100	66,700
1989:5	200	10,300	10,700	6,400	11,600	55,700	67,300

INDUSTRIAL EMPLOYMENT: Clark County

(Number of Jobs)

Year / Month	SERVICE				GOVERNMENT		
	F.I.R.E.	Hotels & Gaming	Other	TOTAL	Federal	State	TOTAL
1980	10,083	69,883	31,208	101,092	4,842	30,717	21,058
1981	10,133	70,233	33,167	103,400	4,758	31,392	21,650
1982	10,133	70,467	32,608	103,075	4,958	32,458	22,558
1983	10,475	71,000	33,642	104,642	4,942	32,192	22,350
1984	11,475	73,592	36,208	109,800	5,158	33,483	22,950
1985	12,617	77,858	37,983	115,842	5,500	34,725	23,792
1986	13,300	81,158	41,858	123,017	5,875	36,392	24,908
1987	14,050	88,675	45,950	134,625	6,158	38,267	26,117
1988:5	15,000	94,900	49,000	143,900	6,300	42,000	28,200
1988:6	15,200	95,700	49,600	145,300	6,400	37,400	26,100
1988:7	15,200	96,800	49,300	146,100	6,400	34,900	24,900
1988:8	15,300	97,400	49,800	147,200	6,400	34,800	24,800
1988:9	15,600	97,800	50,600	148,400	6,400	41,100	27,900
1988:10	15,700	98,100	50,900	149,000	6,400	43,300	29,000
1988:11	15,900	98,700	52,300	151,000	6,400	43,400	29,000
1988:12	16,100	96,700	51,100	147,800	6,500	44,100	29,400
1988	15,225	95,442	49,583	145,025	6,367	40,508	27,517
1988:1	16,100	97,500	52,100	149,600	6,600	42,700	28,700
1988:2	16,200	97,800	51,500	149,300	6,600	44,300	29,600
1988:3	16,400	98,600	51,900	150,500	6,600	44,600	29,800
1988:4	16,400	99,300	52,000	151,300	6,600	45,000	30,000
1988:5	16,600	100,300	52,500	152,800	6,500	45,100	30,100

INDUSTRIAL EMPLOYMENT: Washoe County

(Number of Jobs)

Year/ Month	Mining	Manufacturing	Transportation	Public Utilities	TRADE		
					Wholesale	Retail	TOTAL
1980	992	8,100	3,767	4,342	5,925	18,692	24,617
1981	867	8,317	3,692	4,550	6,433	18,583	25,017
1982	658	7,833	3,775	4,383	6,200	18,108	24,308
1983	592	7,508	3,792	4,108	5,925	18,433	24,358
1984	725	8,125	3,933	3,933	6,033	20,167	26,200
1985	700	8,333	4,033	3,892	6,200	21,183	27,383
1986	758	8,225	4,625	4,033	6,458	21,817	28,267
1987	933	8,450	4,850	4,150	7,283	22,267	29,550
1988:5	1,200	8,600	5,100	4,200	7,500	23,100	30,600
1988:6	1,300	8,800	5,200	4,200	7,700	23,600	31,300
1988:7	1,400	8,600	5,200	4,200	7,800	23,600	31,400
1988:8	1,400	8,600	5,300	4,200	7,800	24,300	32,100
1988:9	1,400	8,600	5,100	4,300	7,900	24,800	32,700
1988:10	1,400	8,600	5,200	4,200	7,800	24,800	32,600
1988:11	1,400	8,700	5,200	4,300	7,800	25,400	33,200
1988:12	1,400	8,800	5,300	4,300	7,800	25,800	33,600
1988	1,267	8,683	5,142	4,225	7,667	23,892	31,558
1989:1	1,300	8,800	5,200	4,200	7,800	24,600	32,400
1989:2	1,200	8,800	5,200	4,200	7,900	24,200	32,100
1989:3	1,300	8,800	5,400	4,200	7,900	24,400	32,300
1989:4	1,400	8,900	5,400	4,200	7,900	24,800	32,700
1989:5	1,400	9,000	5,500	4,200	7,900	25,100	33,000

INDUSTRIAL EMPLOYMENT: Washoe County

(Number of Jobs)

Year / Month	SERVICE				GOVERNMENT		
	F.I.R.E	Hotels & Gaming	Other	TOTAL	Federal	State	TOTAL
1980	6,075	28,608	14,550	43,158	2,717	19,700	13,425
1981	6,142	28,175	15,458	43,633	2,575	19,700	13,517
1982	6,108	27,808	15,975	43,783	2,683	20,192	13,842
1983	6,183	27,242	16,508	43,750	2,758	20,175	13,717
1984	6,400	28,958	17,792	46,750	2,767	20,600	13,883
1985	6,392	29,258	19,033	48,292	2,867	20,650	13,833
1986	6,750	29,367	21,742	51,108	2,842	19,892	12,767
1987	7,008	30,308	23,308	53,617	2,908	20,367	13,142
1988:5	6,900	31,700	24,000	55,700	2,900	22,400	14,400
1988:6	6,900	31,200	24,500	55,700	2,900	20,500	13,500
1988:7	7,000	32,300	24,700	57,000	2,900	18,800	12,700
1988:8	7,100	32,200	24,900	57,100	2,900	18,800	12,700
1988:9	7,000	31,700	25,200	56,900	2,900	21,700	14,000
1988:10	7,000	31,400	25,100	56,500	2,900	22,600	14,400
1988:11	6,900	31,000	24,900	55,900	2,900	22,600	14,400
1988:12	6,800	29,900	24,900	54,800	2,900	23,000	14,600
1988	6,892	30,983	24,342	55,325	2,900	21,425	13,867
1988:1	6,800	29,600	24,600	54,200	2,900	21,300	13,800
1988:2	6,800	29,400	24,900	54,300	2,900	23,000	14,700
1988:3	7,000	29,900	25,000	54,900	2,900	23,200	14,800
1988:4	7,000	30,400	25,300	55,700	2,900	23,000	14,600
1988:5	7,100	31,100	25,500	56,600	2,900	23,300	14,800

AVERAGE WEEKLY HOURS: Clark County

Year/ Month	Construction	Manufacturing	Durable Goods	Non Durable Goods	Transportation *	Wholesale Trade	Retail Trade
1980	33.9	39.4	40.2	37.8	40.0	38.3	29.8
1981	35.5	39.8	40.4	38.9	40.4	38.2	31.1
1982	34.3	39.2	39.0	39.5	39.9	37.6	30.8
1983	35.1	39.4	39.2	39.9	40.1	38.1	31.0
1984	36.4	39.6	39.3	40.2	40.6	37.6	31.0
1985	35.6	39.9	39.4	40.5	40.7	38.2	30.9
1986	36.5	39.4	39.4	39.4	40.8	37.4	30.6
1987	35.6	40.2	40.8	39.4	40.4	38.0	31.3
1988:5	35.6	39.8	40.2	39.2	41.1	39.3	31.6
1988:6	37.3	39.8	41.0	38.1	40.9	39.1	32.1
1988:7	37.9	40.0	40.4	39.4	40.5	39.5	31.9
1988:8	36.3	40.2	40.6	39.7	39.7	38.6	32.7
1988:9	38.0	40.5	40.9	39.9	41.1	38.9	31.7
1988:10	37.8	40.8	41.0	40.4	40.8	38.5	32.5
1988:11	34.4	41.1	41.3	40.9	41.8	39.2	32.1
1988:12	38.0	42.4	43.1	41.3	40.5	38.6	32.9
1988	36.6	40.2	40.6	39.5	40.9	39.2	31.8
1989:1	36.9	41.3	41.2	41.5	41.0	39.4	31.6
1989:2	36.4	41.6	42.6	40.2	41.4	39.4	32.0
1989:3	37.6	42.1	43.8	39.6	40.8	39.3	32.4
1989:4	37.9	42.6	43.8	40.7	42.1	39.4	33.4
1989:5	37.1	43.2	46.0	38.9	40.6	39.6	33.3

* Excluding Railroad & Public Utilities

AVERAGE HOURLY EARNINGS: Clark County

Year/ Month	Construction	Manufacturing	Durable Goods	Non Durable Goods	Transportation *	Wholesale Trade	Retail Trade
1980	13.98	9.12	9.60	8.15	8.31	7.85	5.85
1981	15.70	10.49	11.42	8.42	9.22	8.55	5.96
1982	17.20	10.68	11.51	9.19	9.93	9.05	6.48
1983	16.82	10.91	11.50	9.91	10.71	8.96	6.52
1984	16.55	11.37	11.96	10.30	11.03	9.58	6.57
1985	16.04	11.07	11.92	9.84	11.08	9.89	6.89
1986	16.33	11.32	12.51	9.59	11.36	10.16	7.14
1987	16.50	12.16	13.56	10.09	11.68	10.64	7.57
1988:5	16.56	12.35	13.13	10.78	12.17	10.77	7.80
1988:6	16.31	12.47	13.72	10.60	11.89	10.65	7.86
1988:7	16.40	12.59	13.83	10.84	12.07	10.71	7.93
1988:8	16.18	12.70	14.02	10.79	12.07	10.65	7.86
1988:9	16.07	12.66	14.12	10.57	11.94	10.84	8.17
1988:10	15.95	13.14	14.93	10.57	12.38	10.95	7.77
1988:11	15.95	12.62	14.15	10.51	13.08	10.80	7.92
1988:12	15.71	12.76	14.07	10.82	12.02	10.92	7.61
1988	16.13	12.60	13.91	10.70	12.15	10.74	7.82
1989:1	16.03	13.01	14.47	10.74	12.44	11.03	7.80
1989:2	16.08	12.89	14.33	10.56	12.53	11.02	7.66
1989:3	15.97	13.08	14.08	11.38	12.71	10.95	7.82
1989:4	16.12	12.73	13.84	10.91	13.06	11.26	7.63
1989:5	16.23	12.41	13.43	10.57	13.19	11.08	7.50

* Excluding Railroads & Public Utilities

TAXABLE SALES and GAMING REVENUES: Clark and Washoe Counties

Year/ Quarter	Clark County				Washoe County			
	TAXABLE SALES		GAMING REVENUES		TAXABLE SALES		GAMING REVENUES	
	($ 000)	Growth Rate	($ 000)	Growth Rate	($ 000)	Growth Rate	($ 000)	Growth Rate
1980	3,325,218	0.62	1,619,081	13.69	1,694,981	1.92	456,771	8.06
1981	3,637,724	9.40	1,676,406	3.54	1,713,817	1.11	508,334	11.29
1982	3,576,901	-1.67	1,751,442	4.48	1,582,927	-7.64	527,760	3.82
1983	3,798,376	6.19	1,886,757	7.73	1,645,578	3.96	585,722	10.98
1984	4,119,297	8.45	2,008,115	6.43	1,864,754	13.32	640,718	9.39
1985	4,547,519	10.40	2,232,924	11.20	2,013,287	7.97	649,410	1.36
1986	5,095,676	12.05	2,393,155	7.18	2,179,765	8.27	655,997	1.01
1987	5,672,438	11.32	2,737,999	14.41	2,278,223	4.52	700,373	6.76
1988:1	1,439,982	13.05	746,364	7.21	560,160	14.88	166,026	7.10
1988:2	1,587,866	10.03	721,515	6.45	642,011	10.53	196,702	9.84
1988:3	1,637,862	16.31	766,112	11.18	650,991	7.93	207,280	5.00
1988:4	1,747,154	12.92	767,810	13.74	667,744	10.08	172,125	1.92
1988	6,412,864	13.05	3,001,801	9.63	2,520,906	10.65	742,133	5.96
1989:1	1,770,989	22.99	813,888	9.05	616,365	10.03	162,611	-2.06
1989:2	1,856,915	16.94			670,021	4.36		

Data Note: Annual values are sums of quarterly values.

CONSTRUCTION: Clark County
RESIDENTIAL PERMITS-PRIVATELY OWNED NEW HOUSING

Year/ Month	UNITS		VALUATION		
	TOTAL	SINGLE FAMILY	TOTAL ($ 000)	Single Family ($ 000)	Non-Residential ($ Million)
1980	8,005	4,106	257,418	175,042	316.6
1981	7,563	4,391	236,089	167,465	301.7
1982	6,234	3,055	187,404	126,562	169.8
1983	12,951	6,345	422,732	270,786	351.2
1984	9,571	4,575	368,456	222,572	272.7
1985	9,633	5,026	360,263	241,761	357.0
1986	11,845	7,019	522,164	383,888	444.7
1987	12,468	7,204	528,130	385,492	359.6
1988:3	2,574	668	88,731	38,253	38.1
1988:4	2,063	780	101,774	51,917	23.0
1988:5	3,481	1,095	129,619	57,277	43.1
1988:6	1,360	536	62,141	33,632	66.3
1988:7	1,337	677	60,725	38,324	25.9
1988:8	2,986	915	103,044	47,965	26.3
1988:9	2,807	1,341	99,864	62,314	24.5
1988:10	1,447	742	66,161	42,794	36.7
1988:11	2,711	828	94,179	41,972	53.7
1988:12	3,028	1,069	116,567	60,838	47.0
1988	26,446	9,884	1,036,662	546,545	433.0
1989:1	1,832	753	77,712	44,146	
1989:2	2,639	1,620	111,724	82,382	
1989:3	2,177	828	89,012	46,502	

Data Note: Annual values are sums of monthly values.

COUNTY ECONOMIC PROFILES

CARSON CITY Profile:

Year/ Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	32,258	1.4	16,994	1,373	7.5		218,061	32,212		138	100
1981	33,200	2.9	18,084	1,633	8.3		199,371	32,449		136	106
1982	33,930	2.2	17,972	2,358	11.6		188,009	33,011		94	60
1983	34,430	1.5	18,409	2,318	11.2		223,612	34,893		230	201
1984	34,750	0.9	17,651	1,740	9.0		257,041	39,301	27.1	202	193
1985	35,400	1.9	18,872	1,843	8.9		280,183	39,206	24.5	322	248
1986	36,040	1.8	19,558	1,233	6.0		310,847	38,063	27.3	494	430
1987	36,650	1.7	20,030	1,362	6.3		331,413	35,663	27.9	411	343
1988:5			20,950	1,110	5.0	5.3			2.8		
1988:6			21,550	910	4.1	4.5	89,317 *	10,274 *	3.2	102 *	96 *
1988:7			21,270	920	4.1	4.6			3.7		
1988:8			21,240	990	4.4	5.0			3.7		
1988:9			21,320	830	3.7	4.6	98,129	11,056	4.7	115	101
1988:10			21,560	840	3.8	4.3			2.9		
1988:11			21,250	970	4.4	4.5			1.5		
1988:12			21,100	1,100	5.0	4.7	99,271	8,717	1.0	64	64
1988	37,450	2.7	20,796	1,120	5.1		367,594	37,429	30.5	341	321
1989:1			20,680	1,710	7.6	6.1			1.3		
1989:2			20,650	1,880	8.4	6.9			1.3		
1989:3			20,790	1,490	6.7	5.9	92,794	7557	1.8	130	94
1989:4			20,940	1,470	6.5	6.3			2.0		
1989:5			21,270	1,240	5.5	5.9					

* Figures available on a quarterly basis.

CHURCHILL COUNTY Profile:

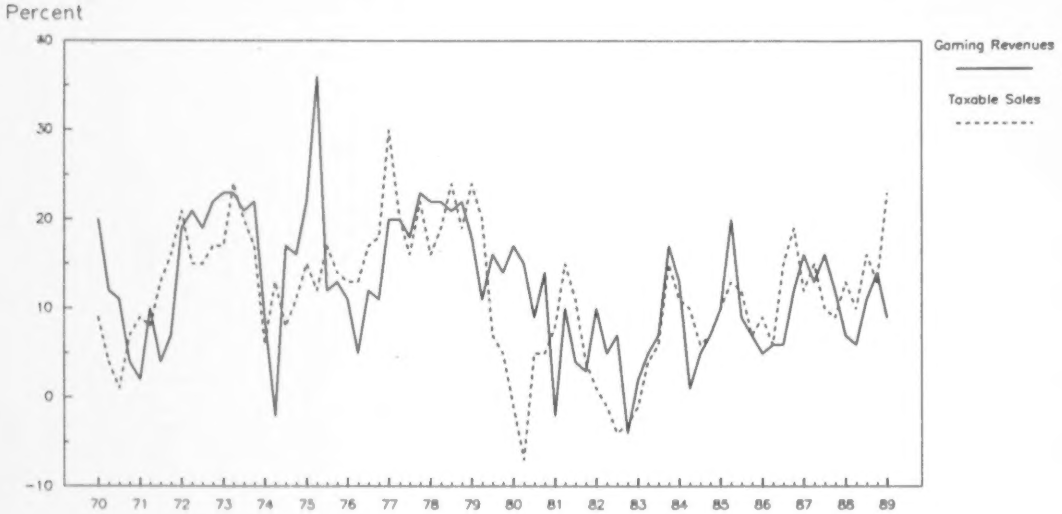
Year/ Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	14,038	3.2	5,309	388	6.8		63,443	788		248	80
1981	14,520	3.4	5,558	506	8.3		58,750	836		53	48
1982	14,630	0.8	5,695	896	13.6		56,945	1,031		31	19
1983	14,800	1.2	5,779	900	13.5		63,650	1,180		57	41
1984	15,050	1.7	5,833	681	10.5		75,396	1,202	5.0	94	75
1985	15,450	2.7	6,443	721	10.1		89,477		5.6	127	66
1986	15,800	2.3	6,695	511	7.1		92,578		6.2	171	106
1987	17,460	10.5	7,427	613	7.7		110,825		7.1	249	125
1988:5			8,370	490	5.5	5.8			0.7		
1988:6			8,340	510	5.8	6.5	35,007 *		0.7	33 *	26 *
1988:7			8,670	460	5.0	5.7			0.8		
1988:8			8,620	430	4.7	5.9			0.8		
1988:9			8,490	470	5.2	6.5	32,005		0.7	55	24
1988:10			8,630	430	4.8	5.4			0.7		
1988:11			8,580	470	5.2	5.4			0.6		
1988:12			8,690	460	5.0	4.5	24,043		0.5	13	13
1988	18,600	7.0	8,347	524	5.9		56,048		7.8	127	83
1989:1			8,540	750	8.1	6.1			0.5		
1989:2			8,630	920	9.6	7.2			0.5		
1989:3			8,920	730	7.6	6.6	25,096	1,798 *	0.7	35	14
1989:4			9,040	590	6.1	5.9			0.7		
1989:5			9,050	590	6.1	6.5					

* Figures available on a quarterly basis.

GROSS GAMING REVENUES VS TAXABLE SALES

Clark County

Percent Change from Year-Ago-Quarter



CLARK COUNTY Profile:

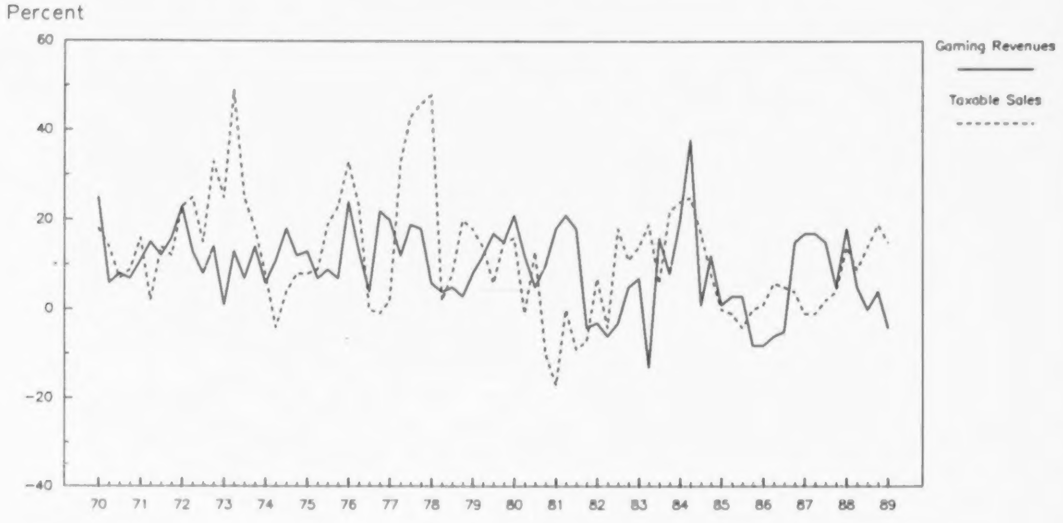
Year/ Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	469,362	6.3	221,492	16,217	6.8		3,325,218	1,619,081		8,005	4,106
1981	494,460	5.3	237,325	20,442	7.9		3,637,724	1,676,406		7,563	4,391
1982	511,930	3.5	239,958	29,358	10.9		3,576,901	1,751,442		6,234	3,055
1983	531,210	3.8	244,000	28,067	10.3		3,798,376	1,886,757		12,951	6,345
1984	546,580	2.9	260,325	24,125	8.5		4,119,297	2,008,115	1,683.8	9,571	4,575
1985	572,140	4.7	270,900	25,375	8.6		4,547,519	2,232,924	1,899.4	9,633	5,026
1986	600,160	4.9	286,267	19,125	6.3		5,095,676	2,393,155	2,152.8	11,845	7,019
1987	631,920	5.3	303,575	21,042	6.5		5,672,438	2,737,999	2,424.6	12,468	7,204
1988:5			322,300	19,400	5.4	5.4			241.0	3,481	1,095
1988:6			323,700	19,900	5.7	6.0	1,587,866 *	721,515 *	177.1	1,360	536
1988:7			325,900	18,600	5.8	5.9			224.6	1,337	677
1988:8			326,200	17,400	5.4	5.3			227.7	2,986	915
1988:9			331,700	16,300	5.1	5.2	1,637,862	766,112	223.1	2,807	1,341
1988:10			336,800	15,900	4.7	4.9			288.6	1,447	742
1988:11			338,000	15,000	4.5	4.6			248.4	2,711	828
1988:12			336,700	15,100	4.3	4.3	1,747,154	767,810	163.1	3,028	1,069
1988	659,838	4.9	324,525	18,358	4.3		4,972,882	3,001,801	2,728.0	26,446	9,884
1989:1			331,300	19,900	5.7	5.4			204.1	1,832	753
1989:2			331,700	21,400	6.1	5.8			231.6	2,639	1,620
1989:3			335,000	20,500	5.8	5.7	1,770,989	1,770,989	237.9	2,177	828
1989:4			339,500	19,100	5.3	5.4			270.0		
1989:5			341,200	18,400	5.1	5.4					

* Figures available on a quarterly basis.

GROSS GAMING REVENUES VS TAXABLE SALES

Douglas County

Percent Change from Year-Ago-Quarter



DOUGLAS COUNTY Profile:

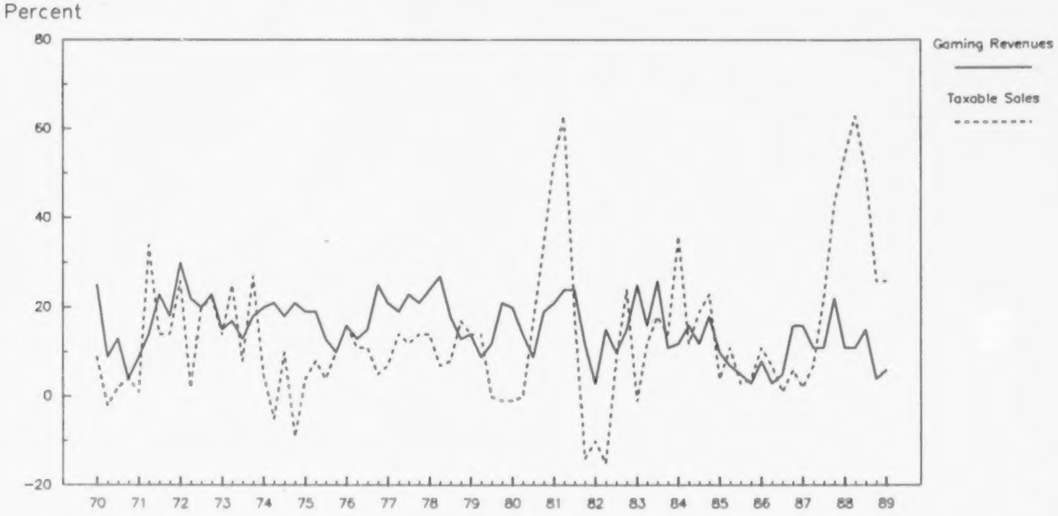
Year/ Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE		TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS	
						SA				Total	Single Family
1980	19,573	0.9	7,973	628	7.3		168,853	212,605		630	307
1981	20,180	3.1	8,014	788	9.0		154,601	241,931		n/a	n/a
1982	20,920	3.7	8,097	900	10.0		167,772	236,847		166	166
1983	21,500	2.8	8,155	924	10.2		192,076	248,915		254	244
1984	22,250	3.5	11,660	706	5.7		227,039	285,802	143.2	462	370
1985	23,200	4.3	12,338	844	6.5		223,621	286,564	154.9	390	336
1986	24,250	4.5	12,404	766	5.8		233,013	280,251	171.6	411	327
1987	25,200	3.9	11,732	833	6.7		235,260	319,450	193.5	341	304
1988:5			11,810	750	5.9	5.9			19.0		
1988:6			12,500	620	4.7	5.4	64,024 *	84,930 *	16.2	143 *	133 *
1988:7			12,960	530	3.9	5.0			27.1		
1988:8			12,870	520	3.9	5.0			26.8		
1988:9			12,450	480	3.7	4.7	79,418	104,022	13.0	187	171
1988:10			12,400	550	4.2	4.7			19.1		
1988:11			12,190	610	4.7	4.5			14.9		
1988:12			11,930	720	5.7	5.0	65,091	67,291	18.9	134	132
1988	26,110	4.1	12,037	687	5.4		267,690	338,664	214.8	550	520
1989:1			11,550	750	6.1	4.7			9.1		
1989:2			11,620	850	6.8	5.7			20.7		
1989:3			11,740	660	5.3	4.7	68,176	1,798	17.7	33	27
1989:4			11,820	640	5.1	4.6			18.1		
1989:5			12,090	560	4.5	4.4					

* Figures available on a quarterly basis.

GROSS GAMING REVENUES VS TAXABLE SALES

Elko County

Percent Change from Year-Ago-Quarter



ELKO COUNTY Profile:

Year/ Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	17,573	9.1	10,058	504	4.8		109,505	37,637		197	165
1981	18,970	7.9	11,482	636	5.2		137,564	45,335		290	124
1982	19,760	4.2	11,990	1,107	8.5		137,883	50,204		157	135
1983	20,770	5.1	12,327	1,073	8.1		153,729	60,080		253	123
1984	21,830	5.1	11,319	840	7.0		186,347	68,636	58.3	361	103
1985	22,850	4.7	11,878	948	7.5		196,169	72,903	58.6	257	87
1986	23,920	4.7	11,897	779	6.2		207,908	78,434	61.2	101	87
1987	25,000	4.5	12,279	827	6.4		248,059	89,946	71.3	281	153
1988:5			13,660	580	4.1	4.6			6.7		
1988:6			14,320	660	4.4	5.0	93,593 *	25,212 *	11.1	61 *	49 *
1988:7			14,530	560	3.7	4.7			9.2		
1988:8			14,540	490	3.3	4.4			8.8		
1988:9			14,300	510	3.4	4.4	102,167	29,258	12.7	216	84
1988:10			14,290	600	4.0	4.8			8.0		
1988:11			13,900	700	4.8	4.8			6.3		
1988:12			13,700	710	4.9	4.4	98,483	22,584	7.1	93	91
1988	26,790	7.66	13,539	682	4.9		362,708	99,498	93.0	390	243
1989:1			13,300	890	6.2	4.4			5.2		
1989:2			13,340	1,050	7.3	5.3			4.8		
1989:3			13,750	950	6.5	5.3	86,605	23,690	9.2	25	25
1989:4			14,120	710	4.8	4.6			6.4		
1989:5			14,400	800	5.3	6.1					

* Figures available on a quarterly basis.

ESMERALDA COUNTY Profile:

Year/ Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES
	Residents	% Chg				SA	($ 000)
1980	842	5.3	223	21	8.1		2,273
1981	1,100	30.6	358	31	7.9		2,809
1982	1,200	9.1	414	64	13.3		3,970
1983	1,330	10.8	363	76	17.3		8,235
1984	1,490	12.0	813	59	6.7		2,561
1985	1,380	-7.4	711	55	7.0		7,522
1986	1,380	0.0	702	38	5.1		7,209
1987	1,380	0.0	651	50	7.1		6,974
1988:5			800	70	8.5	8.5	
1988:6			790	70	8.2	8.2	1,517 *
1988:7			840	50	6.0	6.0	
1988:8			860	50	5.2	5.2	
1988:9			870	50	5.2	5.2	1,396
1988:10			890	50	4.8	4.8	
1988:11			910	40	4.4	4.4	
1988:12			930	30	3.3	3.3	2,058
1988	1,440	4.8	807	53	6.2		6,463
1989:1			930	40	4.4	4.4	
1989:2			940	70	6.5	6.5	
1989:3			970	60	5.4	5.4	1,366
1989:4			1,000	60	5.5	5.5	
1989:5			1,020	50	4.9	4.9	

* Figures available on a quarterly basis.
Data Note: Gaming Revenues, Room Tax and Construction figures not available.

EUREKA COUNTY Profile:

Year/ Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES
	Residents	% Chg				SA	($ 000)
1980	1,208	20.8	661	34	4.9		8,564
1981	1,250	3.5	701	41	5.1		8,243
1982	1,250	0.0	671	106	13.5		6,264
1983	1,270	1.6	693	75	9.8		11,107
1984	1,350	6.3	853	51	5.7		19,957
1985	1,450	7.4	1,114	72	6.1		30,074
1986	1,530	5.5	1,175	52	4.1		18,390
1987	1,950	27.5	1,403	38	2.7	2.6	37,150
1988:5			2,670	50	1.8	1.9	
1988:6			2,890	60	1.9	2.0	18,540 *
1988:7			2,980	50	1.7	1.8	
1988:8			3,140	60	1.7	1.8	
1988:9			3,160	40	1.3	1.3	29,037
1988:10			3,300	30	0.9	0.9	
1988:11			3,430	40	1.2	1.2	
1988:12			3,510	70	1.9	1.9	18,655
1988	2,010	3.6	2,854	53	1.9		83,935
1989:1			3,640	120	3.1	2.9	
1989:2			3,780	100	2.5	2.4	
1989:3			4,000	100	2.5	2.4	24,785
1989:4			4,060	60	1.4	1.4	
1989:5			4,110	60	1.4	1.4	

* Figures available on a quarterly basis.
Data Note: Gaming Revenue, Room Tax and Construction figures not available.

HUMBOLDT COUNTY Profile:

Year/ Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	9,699	12.8	5,168	225	4.2		62,455	7,492		117	117
1981	10,700	10.3	5,687	312	5.2		62,873	8,588		88	64
1982	11,430	6.8	5,211	598	10.3		66,833	8,051		67	67
1983	11,480	0.4	5,175	657	11.3		100,169	8,829		26	22
1984	11,790	2.7	5,059	508	9.2		90,965	8,630	20.4	8	8
1985	11,880	0.8	4,934	494	9.2		137,583	8,424	21.5	10	4
1986	11,820	-0.5	4,838	383	7.4		117,243	8,280	22.0	34	34
1987	12,180	3.0	5,398	355	6.3		142,639		26.7	25	25
1988:5			6,320	300	4.5	4.8			2.7		
1988:6			6,560	220	3.3	3.9	45,371 *		3.9	19 *	3 *
1988:7			6,630	230	3.3	4.1			3.8		
1988:8			6,550	210	3.1	4.1			4.9		
1988:9			6,380	210	3.2	4.1	47,809		3.6	32	29
1988:10			6,370	260	4.0	4.4			2.9		
1988:11			6,220	250	3.8	3.8			2.0		
1988:12			6,210	310	4.7	4.0	49,535		2.0	64	16
1988	12,940	6.7	6,181	278	4.3		183,069		32.3	120	53
1989:1			5,980	410	6.4	4.4			1.7		
1989:2			5,960	530	8.2	6.2			1.6		
1989:3			6,170	430	6.5	5.5	51,533	2,235 *	2.1	5	5
1989:4			6,250	360	5.4	5.5			2.5		
1989:5			6,280	290	4.4	4.5					

* Figures available on a quarterly basis.

LANDER COUNTY Profile:

Year/ Month	POPULATION Residents	% Chg	EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE	SA	TAXABLE SALES ($ 000)	ROOM TAX ($ 000)
1980	4,257	18.3	2,249	90	3.9		31,903	
1981	4,980	17.0	2,519	108	4.1		27,748	
1982	4,970	-0.2	2,290	241	9.6		29,241	
1983	4,700	-5.4	2,018	281	12.2		38,493	
1984	4,570	-2.8	1,947	155	7.4		39,069	5.6
1985	4,500	-1.5	1,988	175	8.2		33,820	3.2
1986	4,490	0.2	1,888	198	9.4		36,999	3.9
1987	4,580	2.0	2,327	148	6.1		50,618	5.3
1988:5			2,610	110	4.1	4.3		0.5
1988:6			2,690	130	4.6	5.1	16,477 *	0.0
1988:7			2,790	120	4.1	4.8		0.6
1988:8			2,830	100	3.5	4.3		0.7
1988:9			2,830	130	4.3	5.2	16,641	0.6
1988:10			2,880	120	4.1	5.0		0.8
1988:11			2,850	170	5.7	6.1		0.0
1988:12			2,850	140	4.7	4.9	19,049	1.2
1988	4,960	8.8	2,685	140	5.0		65,675	6.1
1989:1			2,790	190	6.4	4.9		0.5
1989:2			2,790	200	6.5	4.9		0.4
1989:3			2,820	200	6.6	5.0	20,662	0.0
1989:4			2,840	180	6.0	5.4		0.6
1989:5			2,850	190	6.2	6.7		

* Figures available on a quarterly basis.

Data Note: Gaming Revenues and Construction figures not available.

LINCOLN COUNTY Profile:

Year/ Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)
1980	3,786	5.2	1,837	86	4.5		9,162	
1981	4,000	5.7	2,301	146	5.9		8,211	
1982	4,130	3.3	2,475	337	12.0		9,134	
1983	4,060	-1.7	2,340	226	8.8		8,817	
1984	4,100	1.0	2,098	145	6.5		9,024	0.4
1985	4,200	2.4	2,060	148	6.7		9,068	0.4
1986	4,200	0.0	2,031	120	5.6		7,529	0.5
1987	4,250	1.2	2,120	133	5.9		8,276	0.6
1988:5			2,130	100	4.4	4.9		0.1
1988:6			2,150	140	6.0	7.0	3,138 *	0.1
1988:7			2,160	100	4.2	5.0		0.1
1988:8			2,160	80	3.6	4.1		0.1
1988:9			2,160	70	2.9	2.8	2,469	0.1
1988:10			2,190	80	3.4	3.7		0.1
1988:11			2,180	100	4.3	3.9		0.1
1988:12			2,180	90	3.8	3.5	2,675	0.0
1988	4,280	1.2	2,112	103	4.5		10,078	1.0
1989:1			2,140	130	5.6	4.9		0.2
1989:2			2,150	140	6.2	5.3		0.1
1989:3			2,190	120	5.0	4.9	2,261	0.1
1989:4			2,200	130	5.7	6.0		0.1
1989:5			2,190	90	4.0	4.5		

* Figures available on a quarterly basis.
Data Note: Gaming Revenues and Construction figures not available.

LYON COUNTY Profile:

Year/ Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES
	Residents	% Chg				SA	($ 000)
1980	13,735	10.8	3,893	322	7.6		44,804
1981	14,300	4.1	4,345	408	8.6		46,412
1982	14,850	3.8	4,686	686	12.8		44,023
1983	15,450	4.0	4,781	683	12.6		44,599
1984	16,200	4.9	8,098	608	7.1		52,811
1985	17,050	5.2	8,638	792	8.4		57,761
1986	17,950	5.3	9,384	668	6.7		63,109
1987	19,750	10.0	9,609	749	7.3		72,175
1988:5			10,950	650	5.6	5.9	
1988:6			11,400	590	4.9	5.3	20,891 *
1988:7			11,450	480	4.0	4.6	
1988:8			11,650	490	4.0	4.8	
1988:9			11,360	460	3.9	4.6	19,787
1988:10			11,380	510	4.3	5.0	
1988:11			11,360	570	4.8	5.2	
1988:12			11,230	610	5.1	5.0	20,548
1988	20,900	6.3	10,983	620	5.4		78,479
1989:1			10,900	1,000	8.4	6.7	
1989:2			10,970	1,140	9.4	7.4	
1989:3			11,280	790	6.6	5.3	20,910
1989:4			11,620	750	6.0	5.7	
1989:5			11,810	650	5.2	5.6	

* Figures available on a quarterly basis.
Data Note: Gaming Revenues, Room Tax and Construction figures not available.

MINERAL COUNTY Profile:

Year/ Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	6,237	2.2	2,970	112	3.7		17,352		
1981	6,300	1.0	3,246	164	4.8		17,970		
1982	6,250	-0.8	3,224	298	8.4		17,429		
1983	6,150	-1.6	3,428	275	7.4		20,782		
1984	6,030	-2.0	2,852	218	7.1		26,128		4.5
1985	6,030	0.0	2,820	275	8.9		25,410		4.6
1986	6,130	1.7	2,804	213	7.0		27,202		4.8
1987	6,470	5.5	2,768	208	6.9		36,488		5.2
1988:5			2,900	180	6.0	6.2			0.6
1988:6			2,900	130	4.4	4.4	10,597 •		0.6
1988:7			2,920	120	4.0	3.7			0.6
1988:8			2,890	100	3.5	3.8			0.6
1988:9			2,860	160	5.2	6.0	10,912		0.6
1988:10			2,880	120	4.0	4.5			0.8
1988:11			2,840	160	5.5	5.4			0.4
1988:12			2,830	130	4.5	4.5	12,940		0.4
1988	6,650	3.3	2,848	148	5.0		42,821		6.3
1989:1			2,770	180	6.0	5.5			0.4
1989:2			2,770	230	7.6	7.0			0.4
1989:3			2,780	180	5.9	5.7	14,181	2,235 •	0.5
1989:4			2,780	180	6.0	5.7			0.5
1989:5			2,760	220	7.2	7.4			

• Figures available on a quarterly basis.
Data Note: Construction figures not available.

NYE COUNTY Profile:

Year/ Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	9,458	15.3	2,476	108	4.1		55,395	3,111	
1981	11,100	17.4	2,965	143	4.6		63,974	4,299	
1982	13,240	19.3	3,223	280	8.0		77,983	4,552	
1983	13,700	3.5	3,348	292	8.0		65,423	4,615	
1984	14,850	8.4	6,178	284	4.4		75,487	5,299	11.0
1985	14,850	0.0	6,588	436	6.2		77,251	5,766	11.8
1986	14,970	0.8	6,720	436	6.1		74,159	6,562	11.8
1987	15,520	3.7	6,853	413	5.7		162,428		15.0
1988:5			7,270	370	4.8	4.8			1.6
1988:6			7,290	380	4.9	4.7	43,592 •		1.6
1988:7			7,360	340	4.4	4.2			1.6
1988:8			7,210	300	4.0	4.3			1.8
1988:9			7,230	320	4.3	4.6	51,497		1.8
1988:10			7,130	310	4.2	4.4			2.0
1988:11			7,080	310	4.1	3.9			1.8
1988:12			7,110	260	3.5	3.6	48,310		1.1
1988	16,170	4.7	7,138	348	4.6		194,440		18.1
1989:1			7,020	380	5.1	4.8			1.3
1989:2			7,020	420	5.6	5.7			1.5
1989:3			7,130	400	5.3	5.5	92,794	2,637 •	1.9
1989:4			7,190	370	4.9	4.6			1.7
1989:5			7,230	430	5.6	5.7			

• Figures available on a quarterly basis.
Data Note: Construction figures not available.

PERSHING COUNTY Profile:

Year/ Month	POPULATION		EMPLOY- MENT	UNEMPLOY- MENT	UNEMPLOYMENT RATE		TAXABLE SALES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)
1980	3,448	11.2	1,485	75	4.8		12,545	
1981	3,610	4.7	1,955	108	5.2		12,590	
1982	3,720	3.0	1,878	132	6.6		14,046	
1983	3,710	-0.3	1,637	105	6.1		14,120	
1984	3,650	-1.6	1,718	91	5.0		15,217	2.6
1985	3,610	-1.1	1,733	108	5.9		15,792	2.8
1986	3,850	6.6	2,008	89	4.4		29,205	4.7
1987	4,360	13.2	2,138	88	3.9		31,279	4.8
1988:5			2,720	80	2.9	3.4		0.5
1988:6			2,780	80	2.8	3.7	8,993 *	0.7
1988:7			2,750	90	3.0	4.3		0.7
1988:8			2,700	50	1.7	2.5		0.8
1988:9			2,630	50	1.8	2.6	10,742	0.6
1988:10			2,650	80	2.8	2.9		0.4
1988:11			2,620	80	3.1	3.1		0.3
1988:12			2,640	70	2.5	2.0	8,778	0.2
1988	4,590	5.8	2,608	85	3.2		37,383	5.2
1989:1			2,580	110	4.1	2.8		0.2
1989:2			2,600	150	5.4	3.7		0.2
1989:3			2,700	120	4.4	3.6	8,606	0.2
1989:4			2,720	90	3.3	3.6		0.3
1989:5			2,710	70	2.7	3.2		

* Figures available on a quarterly basis.
Data Note: Gaming Revenues and Construction figures not available.

STOREY COUNTY Profile:

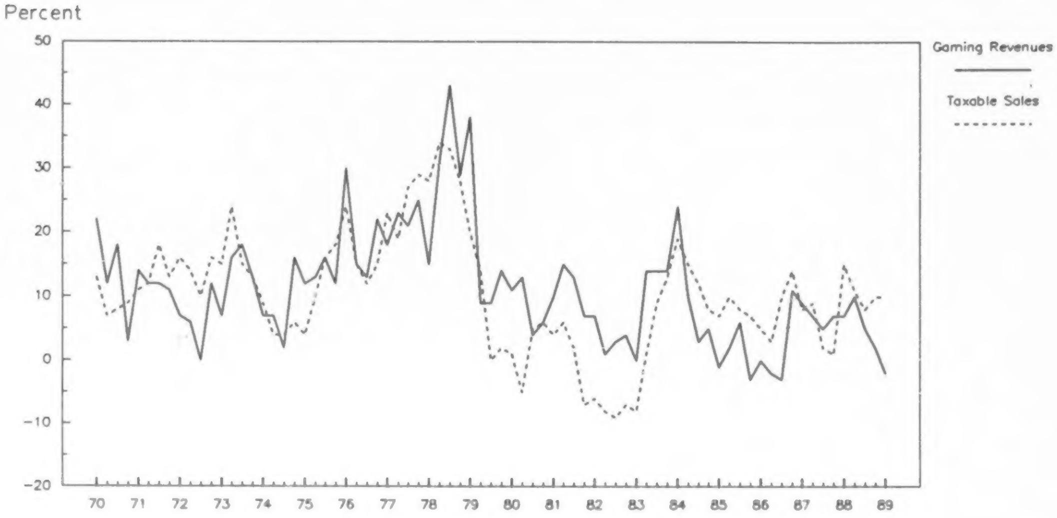
Year/ Month	POPULATION		EMPLOY- MENT	UNEMPLOY- MENT	UNEMPLOYMENT RATE		TAXABLE SALES	GAMING REVENUE	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	1,520	16.9	1,138	48	4.1		14,028		
1981	1,590	4.6	1,275	103	7.5		9,054		
1982	1,690	6.3	1,108	166	13.1		7,136		
1983	1,730	2.4	1,147	227	16.7		7,753		
1984	1,780	2.9	994	187	15.9		9,605		
1985	1,850	3.9	824	98	10.5		10,880		
1986	1,960	5.9	781	55	6.7		13,615		1.1
1987	2,130	8.7	838	56	6.3		13,688		1.5
1988:5			840	60	6.9	7.5			0.1
1988:6			900	50	5.4	6.0	4,832 *		0.2
1988:7			920	50	4.7	5.9			0.1
1988:8			910	30	3.0	3.5			0.3
1988:9			890	40	4.4	5.1	5,989		0.1
1988:10			850	40	4.3	4.3			0.2
1988:11			810	50	6.2	5.5			0.1
1988:12			780	50	6.4	5.0	3,766		0.1
1988	2,270	7.1	828	55	6.3		18,783		1.7
1989:1			740	70	8.8	7.1			0.2
1989:2			740	70	8.5	6.7			0.0
1989:3			760	60	7.1	6.2	2,636	326 *	0.2
1989:4			810	60	6.5	6.3			0.1
1989:5			840	50	5.4	5.7			

* Figures available on a quarterly basis.
Data Note: Construction figures not available.

GROSS GAMING REVENUES VS TAXABLE SALES

Washoe County

Percent Change from Year-Ago-Quarter



WASHOE COUNTY Profile:

Year/ Month	POPULATION Residents	% Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GA MING REVENUES ($ 000)	ROOM TAX ($ 000)
1980	195,222	4.3	115,442	6,542	5.4		1,694,981	2,383,418	
1981	201,620	3.3	120,150	7,142	5.6		1,713,817	2,533,389	—
1982	204,800	1.6	121,517	10,867	8.2		1,582,927	2,627,430	
1983	210,590	2.8	121,017	11,058	8.4		1,645,578	2,846,509	
1984	218,190	3.6	120,050	7,958	6.2		1,864,754	3,075,126	543.4
1985	224,420	2.9	123,642	9,058	6.8		2,013,287	3,314,433	574.0
1986	231,780	3.3	127,233	7,008	5.2		2,179,765	3,482,097	600.8
1987	236,480	2.5	129,275	7,808	5.7		2,278,223	3,925,147	651.4
1988:5			133,600	6,600	4.7	5.0			66.7
1988:6			134,700	6,000	4.3	4.7	642,011 *	1,050,918 *	70.6
1988:7			136,500	5,700	4.0	4.5			75.1
1988:8			136,500	5,400	3.8	4.4			71.6
1988:9			137,600	5,100	3.6	4.3	650,991	1,131,090	73.4
1988:10			138,400	5,000	3.5	4.0			65.7
1988:11			137,200	5,600	3.9	4.0			46.2
1988:12			136,600	5,900	4.1	3.7	667,744	1,050,397	40.8
1988	242,800	3.2	134,008	6,483	4.6		2,520,906	4,267,390	713.5
1989:1			131,400	8,300	5.9	4.6			44.9
1989:2			131,300	9,200	6.6	5.5			40.1
1989:3			133,100	7,600	5.4	4.9	616,365	1,050,918	50.9
1989:4			135,400	6,800	4.8	4.7			59.7
1989:5			136,800	6,500	4.6	4.9			

* Figures available on a quarterly basis.

Data Note: Construction figures not available.

WHITE PINE COUNTY Profile:

Year/ Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATES		TAXABLE SALES	GAMING REVENUES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	8,286	2.3	3,647	233	6.0		46,000		
1981	8,760	5.7	4,077	291	6.7		47,943		
1982	8,680	-0.9	3,591	606	14.4		40,198		
1983	7,820	-9.9	3,375	766	18.5		39,985		
1984	7,660	-2.0	3,571	645	15.3		43,689		8.6
1985	7,560	-1.3	3,551	553	13.5		45,786		9.1
1986	7,800	3.2	3,659	336	8.5		43,888		8.4
1987	7,950	1.9	3,602	311	8.0		50,165		10.4
1988:5			3,750	240	6.0	6.1			1.0
1988:6			4,060	210	4.8	5.1	16,750 *		1.5
1988:7			3,860	230	5.6	5.8			1.5
1988:8			3,900	180	4.3	4.6			1.5
1988:9			3,860	190	4.7	4.9	18,650		1.7
1988:10			3,870	190	4.6	4.6			1.3
1988:11			3,790	190	4.7	4.6			0.8
1988:12			3,710	200	5.1	4.9	17,820		0.7
1988	8,090	2.3	3,722	258	6.5		65,054		12.5
1989:1			3,600	300	7.8	7.2			0.5
1989:2			3,550	370	9.3	8.8			0.6
1989:3			3,610	290	7.5	7.1	19,264	475 *	0.9
1989:4			3,730	230	5.8	5.7			0.9
1989:5			3,830	190	4.8	4.9			

* Figures available on a quarterly basis.

Data Note: Construction figures not available.

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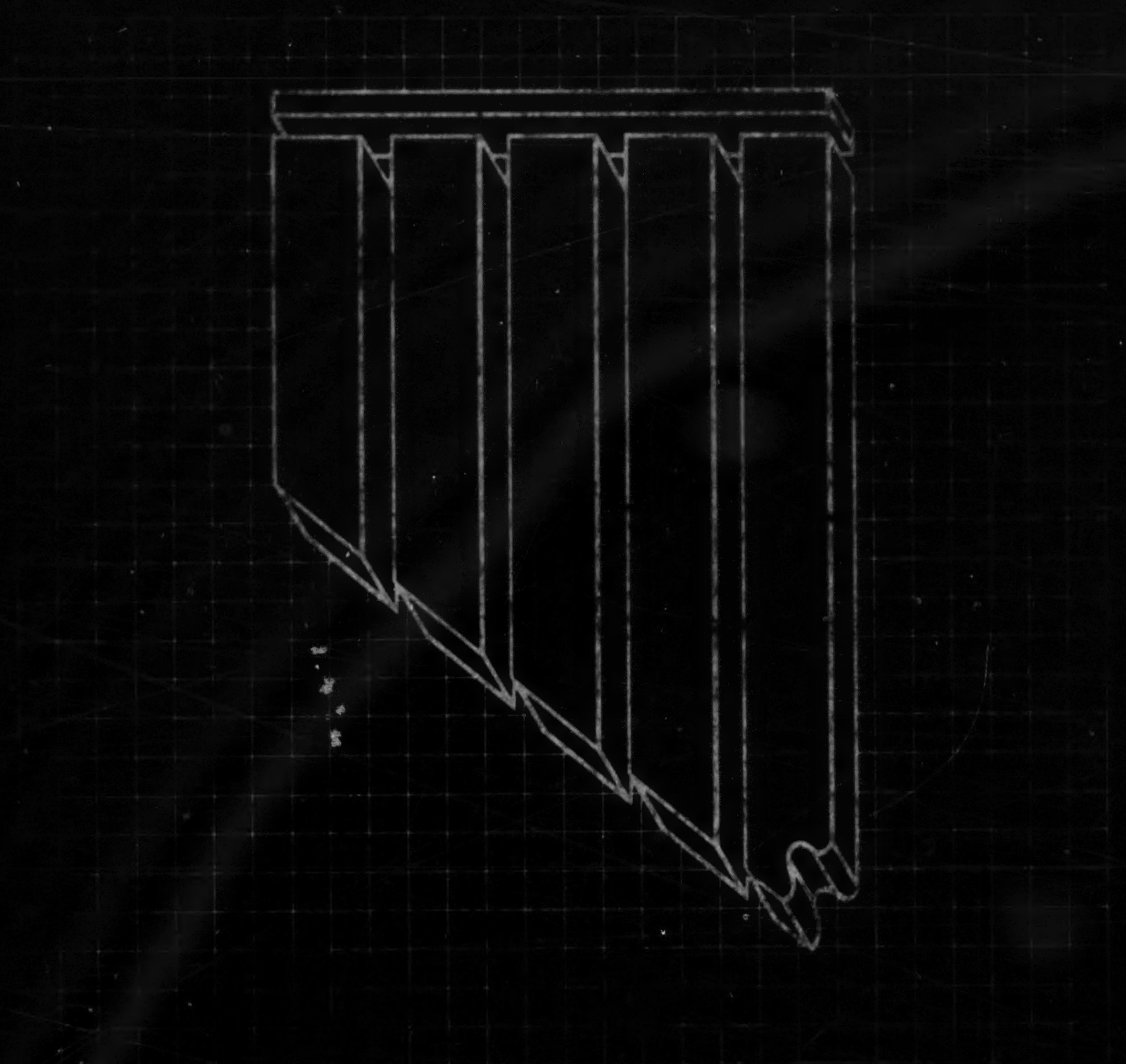

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General Editorial Policy

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The Nevada VAR Model: Update and General Observations

*by Thomas F. Cargill and Kambiz Raffiee**

Introduction

Cargill and Morus in 1985 developed a time-series forecasting model of the Nevada economy based on vector autoregression (VAR) techniques. The model project was supported by the Federal Reserve Bank of San Francisco, the Bureau of Business and Economic Research, UNR, and the Small Business Development Center, UNR. The model was published 1988 (Cargill and Morus, 1988) and has been used for the past three years to provide quarterly forecasts of key measures of economic activity. The forecasts have appeared regularly in the *Western Blue Chip Economic Forecast* prepared by the Economic Outlook Center of Arizona State University.

The current model is an expanded and modified version of the original and represents an evolving effort to incorporate new information about the Nevada economy. This paper discusses the updated version of the model along with related issues about the performance of the Nevada economy during the 1980s. Specifically, six topics are considered in this paper.

First, the overall comparative performance of the Nevada economy in the 1970s and 1980s is reviewed. While the structure of the Nevada economy in the 1980s has not changed significantly, there has been a major slowdown in overall growth and redistribution of economic activity within the State.

Second, the relationship between the Nevada economy and national economic fluctuations is discussed with focus on recent empirical studies that strongly suggest that Nevada is sensitive to national economic swings.

Third, the importance of the California economy to the economic performance of Nevada is clearly understood; however, the relationship between the two state economies has potentially changed as a result of the late 1985 introduction of the California lottery. The VAR model is capable of providing some indication of how significant the impact on the lottery has been on the Nevada economy.

Fourth, as Nevada enters the last decade of the 20th century a number of major policy issues facing the State are discussed. These will increasingly occupy the attention of a wide range of policy makers and the choices made during the 1990s will have profound implications for the type of state economy that will dominate at least the first few decades of the 21st century.

Fifth, the updated version of the VAR model is outlined and discussed.

Sixth and finally, the future research agenda for the VAR model is indicated.

Nevada Economic Profile: Changes Between the 1980s and 1970s

Despite the relatively small size of the Nevada economy by almost any measure, Nevada is an interesting regional economy for the same reasons discussed a decade ago (Cargill, 1979; 1982). First, Nevada's rapid growth has continued into the 1980s, though most key indicators have not grown as rapidly as they did in the 1970s. Figures 1 through 4 present the annual growth rate of four key measures of economic activity along with average growth rates for two periods, 1970-1979 and 1980-1988 (dashed lines): gross gaming revenues, taxable sales, personal income, and industrial employment. In all four cases, there is a significant decline in average growth in the 1980s compared to the previous decade. Thus, while Nevada continues to remain one of the fastest growth regions in the nation and is projected to continue growing at a rapid rate in the 1990s, there is a major shift in growth rates during the past two decades.

Second, gaming continues to dominate the State economy in terms of employment; however, there has been a noticeable decline in the relative role of gaming in the 1980s. Figure 5 illustrates the increasing role of gaming employment in the 1970s which peaked around 1978 and began a gradual decline through 1988. The data are consistent with the view that recent efforts to diversify the economy appear successful; whether the relative decline in gaming employment would have occurred in any event is, however, open to question.

Third, Nevada's economic structure continues to be a mixture of urban and rural with most of the population and economic activity concentrated in the four urban regions of the State (Table 1): Clark County, Washoe County, Carson City, and Douglas County. Together, these four urbanized areas represented 88.2 percent and 91.4 percent of Nevada population and industrial employment, respectively. These percentages are about the same as they were in 1980 and suggest that the mix between rural and urban has not changed significantly during the decade. At the same time, the percentages in Table 1 suggest a clear trend. There has been a shift of population and economic activity from the northern to the southern part of the State and all available evidence suggests that this trend will continue into the 1990s.

Nevada's growth record in the 1980s and economic profile generated a number of policy debates. The different sides of the

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Figure 1: Gross Gaming Revenue, 1970-88

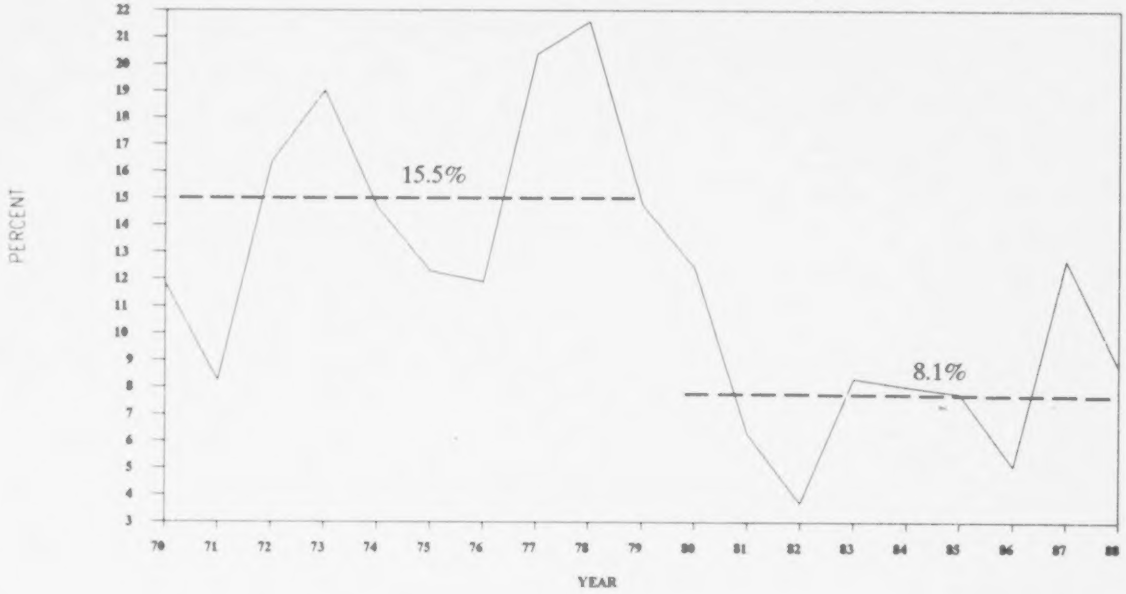

Figure 2: Taxable Sales, 1970-88

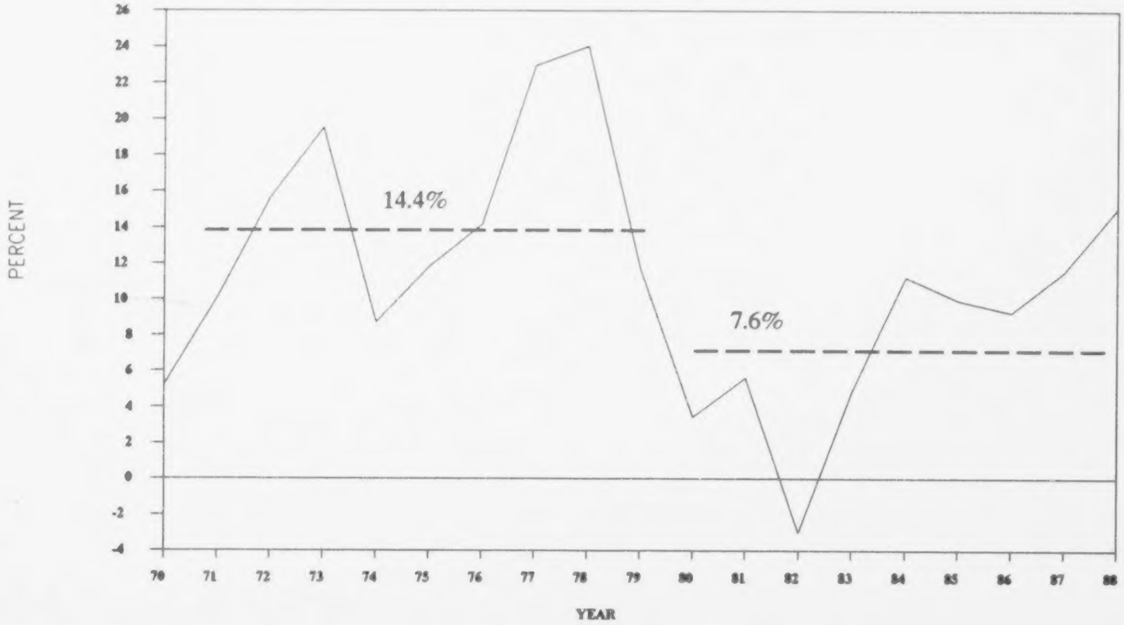

Figure 3: Personal Income, 1970-88

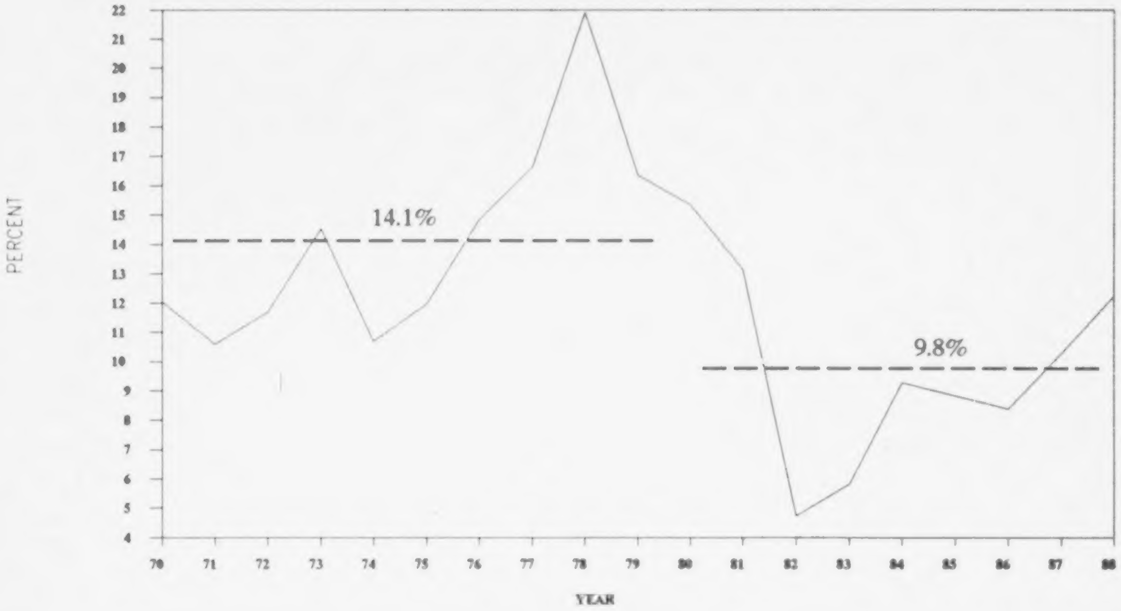

Figure 4: Industrial Employment, 1970-88

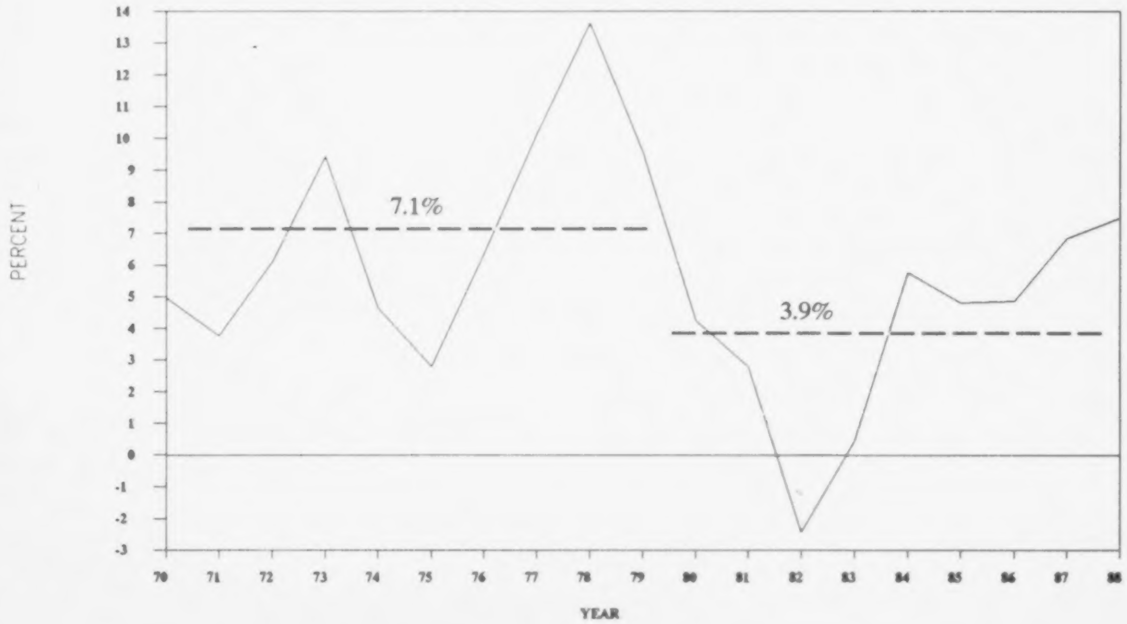

Figure 5: Gaming to Total Employment, 1970-89

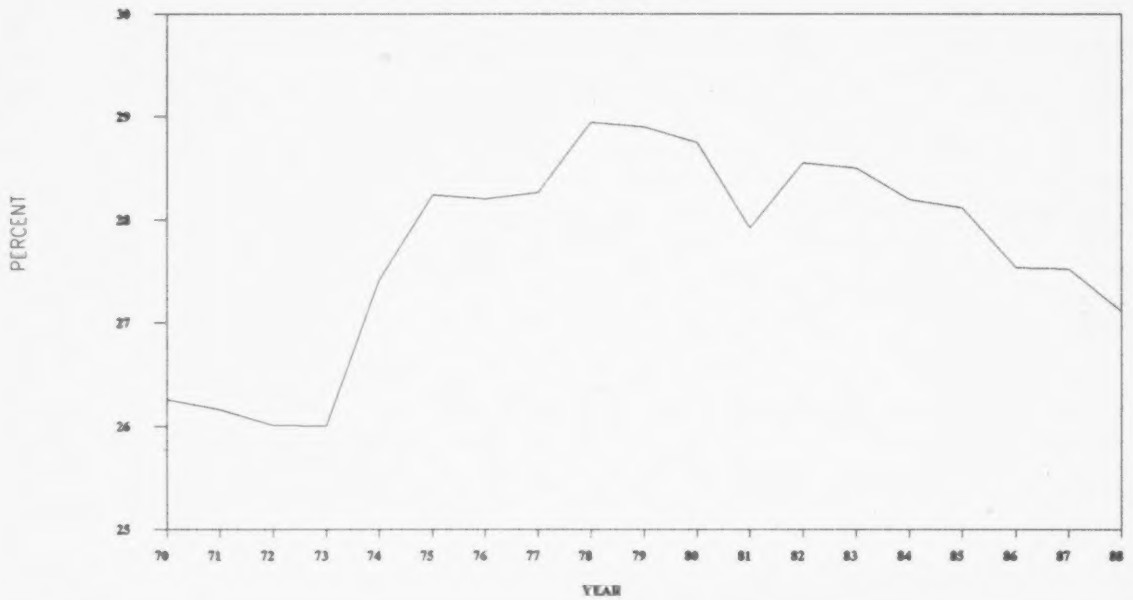

Table 1
Relative Share of Population (P) and Industrial Employment (E) for Southern and Northern Nevada, Percent of Total Nevada Population and Industrial Employment

	S-Nevada		N-Nevada	
	P	E	P	E
1980	57.91	55.37	30.48	35.10
1981	58.14	57.73	29.98	35.57
1982	58.35	59.82	29.59	36.80
1983	58.72	60.58	29.46	36.64
1984	58.64	61.11	29.52	35.06
1985	59.12	60.69	29.24	34.69
1986	59.54	61.16	28.97	34.01
1987	60.00	60.69	28.33	32.19
1988	60.21	60.37	27.96	31.03

Note: Carson City, Douglas Country, and Washoe County classified as northern Nevada and Clark Country classified as southern Nevada.
Source: *Nevada Review of Business and Economics: Economic Indicators.* 14 (Winter 1989/1990).

debates, however, did accept two stylized facts about the Nevada economy which themselves represented a fairly dramatic reversal of views widely held during the 1970s. It would be useful to discuss these two widely accepted stylized facts before raising the policy issues.

Nevada and the National Economy

The events of the 1980s clearly rejected the view that Nevada's economy and gaming industry were recession-proof. The 1981-82 national recession was felt throughout the State economy and the overall variation of the economy measured in terms of the variance of employment, gaming revenues, and taxable sales appeared to have increased in the 1980s over the previous decade.

Cargill (1979) was the first to provide empirical evidence that appeared inconsistent with the recession-proof hypothesis. This evidence was based on data from 1968 through 1978 and while that conclusion was not widely accepted at the time, the economic instability of the State in the early 1980s convinced just about everyone that Nevada was no longer an economic island unto itself.

Recently, additional evidence has been provided on the sensitivity of the Nevada and other state economies to national economic fluctuations. Sherwood-Call, an economist at the Federal Reserve Bank of San Francisco, has provided an extensive econometric study of the degree to which state economies are sensitive to national economic fluctuations (Sherwood-Call, 1988). While Cargill focused only on Nevada and employed a very simple empirical framework, Sherwood-Call studied the sensitivity of all states to national fluctuations and employed a sophisticated time-series technique. The results are interesting from the perspective of Nevada and worth summarizing since they clearly show that Nevada is sensitive to national swings -- perhaps even more than originally thought when compared to the sensitivity of other state economies.

Sherwood-Call estimated for each of the 51 states a VAR model which consisted of two equations. The first equation expresses current national personal income as a function of lagged values of national personal income. The second equation expresses each state's personal income as a function of lagged values of national personal income *and* the state's own lagged values of personal income. The two-equation model thus assumes that national personal income influences state personal income, but not the reverse.

The two-equation model was estimated for the period from 1970 to 1986, using seasonally adjusted quarterly data. Variables are measured in terms of annual growth rates.

The model provides the basis for calculation of LINK, which represents the percentage of the actual deviations of state personal income to those predicted by the model that can be attributed to national shocks as opposed to state shocks.[1] A high (low) value of LINK suggests that the state economy is more (less) associated with national economic fluctuations. Sherwood-Call's estimates of LINK, presented in Table 2, led to the following conclusion:

> "On average, national surprises account for 44 percent of states' observed deviations. The states exhibit a wide range of link measures, from 75 percent for Florida to 8 percent for West Virginia. Moreover, states that one would expect from casual observation to be closely linked to the national economy, such as California, have high LINK values, whereas states that do not appear to be closely linked to the national economy, like Alaska, have low LINK values" (Sherwood-Call, 1989, p. 29).

Table 2
Values of LINK Variable

State	LINK	State	LINK
Florida	74.56	Alabama	46.02
California	73.30	South Carolina	45.74
Tennessee	72.11	Georgia	44.57
Virginia	67.58	Wisconsin	44.19
Connecticut	66.02	Minnesota	43.57
Oregon	63.59	Mississippi	40.91
Massachusetts	63.28	Arkansas	39.40
Ohio	62.95	Kentucky	38.23
New York	62.34	Oklahoma	37.96
Colorado	61.30	Delaware	36.97
Washington	58.54	Pennsylvania	36.96
Vermont	58.21	Idaho	34.97
Arizona	56.78	Hawaii	32.53
New Jersey	56.36	Kansas	29.03
North Carolina	56.12	Michigan	28.64
Illinois	55.33	Montana	25.94
Maryland	54.72	Louisiana	25.33
Nevada	51.12	Wyoming	20.62
New Hampshire	51.02	Nebraska	17.80
Texas	50.70	Iowa	17.67
Indiana	49.81	South Dakota	17.48
Maine	49.25	Washington D.C.	13.30
New Mexico	49.20	Alaska	13.15
Utah	48.05	North Dakota	12.81
Rhode Island	47.46	West Virginia	8.36
Missouri	46.48		

Note: LINK represents the percentage of the actual deviations of state personal income to those predicted by the model that can be attributed to national shocks as opposed to state shocks.
Source: Sherwood-Call, 1988

Note that Nevada ranks 18th of all states in terms of sensitivity to the national economy.

Cargill and Morus (1988) also provided a similar type of variance decomposition analysis consistent with the results in Table 2; however, the more detailed specification of the Nevada VAR model permitted us to estimate the influence of both the nation and California on Nevada's economy. The analysis suggested three conclusions:

> "First, the Nevada and California variables play a less important role in explaining the variance of the national variables than the national variables play in explaining the variance of the Nevada and California variables.... Second, the Nevada variables are less sensitive than the California variable to national variables.... Third, the California variable contributes to the forecast variance of the Nevada variables. This verifies the notion that the large, prosperous neighbor state is influential in Nevada's economic life" (Cargill & Morus, 1988, p. 26).

To what extent is the California economy important to Nevada? It was obvious throughout the postwar period that Nevada depended significantly on California; however, the issue has become even more important since California introduced a lottery in late 1985.

New Competitive Treats: Nevada No Longer the Only Game in Town

The 1980s forced policy makers to recognize that Nevada was indeed sensitive to the economic performance of the nation as well as California and that a recession-proof industry was as elusive as the holy grail. At the same time, Nevada faced increasing competitive threats and could no longer regard itself as the sole supplier of a unique form of gaming-casino gaming. In 1978 casino gaming was permitted in Atlantic City, New Jersey; legalization efforts to establish casino gaming have become more common since 1978, and California introduced a lottery in 1985.

The impact of casino gaming in Atlantic City was minor if even measurable; however, the 1985 introduction of the California lottery has had a consistently measurable adverse effect on Nevada gaming. The Nevada VAR model includes a dummy variable that is negative and statistically significant at the 5 percent level in the gaming revenue, taxable sales, and employment equation. The dummy variable is negative in the income equation; however, it is only significant at slightly less than the 10 percent level.

Table 3 illustrates the impact of the California lottery measured by a simulation of the Nevada VAR model. The model was estimated without and with the dummy lottery variable included. The two sets of equations were then used to predict the values of gaming revenue, taxable sales, industrial employment, and personal income over the period from 1986:1 to 1989:3. As can be seen from Table 3 the predictions of key measures of all Nevada variables are lower with the dummy variable. The implication is that all things taken into account, the model shows that the California lottery has had a negative

Table 3
Predicted Values of Four Measures of Economic Activity in Nevada
Without and With the California Lottery Dummy Variable

	Gross Gaming Revenue (Millions)			Taxable Sales (Millions)			Industrial Employment (Thousands)			Personal Income (Millions)		
Year/Qtr	W/Out Dummy	With Dummy	% Diff.	W/Out Dummy	With Dummy	% Diff.	W/Out Dummy	With Dummy	% Diff.	W/Out Dummy	With Dummy	% Diff.
86:1	851	836	-1.68	2,025	2,004	-1.06	450	449	-0.35	14,481	14,422	-0.40
86:2	880	856	-2.82	2,299	2,252	-2.06	467	464	-0.83	14,798	14,660	-0.93
86:3	944	912	-3.44	2,386	2,318	-2.88	477	471	-1.24	15,210	14,980	-1.51
86:4	871	840	-3.51	2,542	2,456	-3.38	483	476	-1.54	15,688	15,367	-2.04
87:1	963	929	-3.57	2,373	2,282	-3.86	484	475	-1.82	16,173	15,757	-2.57
87:2	999	962	-3.65	2,744	2,628	-4.23	505	495	-2.07	16,679	16,170	-3.05
87:3	1,073	1,032	-3.74	2,843	2,714	-4.54	519	507	-2.29	17,223	16,625	-3.47
87:4	983	943	-4.04	2,998	2,851	-4.93	528	514	-2.51	17,769	17,077	-3.90
88:1	1,067	1,020	-4.43	2,756	2,609	-5.36	528	513	-2.76	18,291	17,499	-4.33
88:2	1,101	1,051	-4.57	3,128	2,952	-5.64	550	534	-2,96	18,911	18,021	-4.71
88:3	1,171	1,119	-4.43	3,238	3,053	-5.71	564	546	-3.06	19,495	18,522	-4.99
88:4	1,082	1,037	-4.24	3,385	3,192	-5.69	570	552	-3.10	20,061	19,016	-5.21
89:1	1,168	1,120	-4.05	3,093	2,919	-5.61	567	550	-3.10	20,625	19,519	-5.36
89:2	1,201	1,156	-3.81	3,431	3,244	-5.44	586	568	-3.05	21,154	20,004	-5.44
89:3	1,259	1,215	-3.54	3,476	3,295	-5.21	596	578	-2.96	21,660	20,480	-5.44
Average			-3.70			-4.37			-2.24			-3.56

Note: Estimation period: First quarter 1965 to third quarter 1989. Seasonally adjusted data (except 6-month Commercial Paper Rate).

impact on Nevada's economy with industrial employment being the least impacted.

Policy Issues for the 1990s

The general acceptance that Nevada is not isolated from national swings in economic activity and that Nevada must compete more vigorously for gaming/tourism expenditures has generated considerable debate over how to change the economic profile of the State to meet the economic and social challenges of the 1990s and the 21st century. Specifically, the debate has focused on the following issues: (1) Should diversification be pursued for its own sake or should the state be more discriminating as to the type of diversification it encourages? (2) Should the state continue to rely on its claimed "favorable tax environment" as an inducement for capital inflows? (3) To what extent can Nevada rely on nonresidents to generate revenue for domestic programs? (4) Is the current revenue-generating system capable of meeting the needs of a state economy that is predicted to remain one of the fastest growth regions in the nation?

These are weighty issues that will increasingly require the attention of Nevada policy makers. The issues place far more importance on understanding the Nevada economy than ever, especially since the evidence clearly indicates that Nevada can no longer ignore the rest of the nation in chartering its future. This in fact was one of the motivations of developing the Nevada VAR model.

The Nevada VAR Model: Update

The current version of the Nevada VAR model incorporates some minor modifications designed to better deal with seasonality and now incorporates Nevada personal income as one of the endogenous variables. Specifically, the model variables are as follows:

National Variables (4):
    Real GNP, Inflation Rate (GNP Price Deflator), 6-Month Commercial Paper Interest Rate, and Civilian Employment
California Variable (1):
    Civilian Employment
Nevada Variables (4):
    Gross Gaming Revenues, Taxable Sales, Industrial Employment, and Personal Income

The most recent forecasts generated by the Bureau of Business and Economic Research can be used to illustrate the VAR model.

First, the 9-equation model is estimated using quarterly data from 1965:1 to the most recent availability of data, which was 1989:3. Due to reporting lags, however, Nevada personal income is available one quarter earlier than all of the other variables. An auto-regressive function with six lags is estimated from 1965:1 through 1989:2 and is used to generate a forecasted value of personal income for 1989:3.

All data are seasonally adjusted with the exception of the commercial paper rate. The national variables and Nevada personal income are reported in seasonally adjusted form while

California civilian employment and the remaining three Nevada variables are seasonally adjusted with the X-11 procedure. This procedure is the basis for all modern seasonal adjustment methods. The seasonally adjusted data, except for the interest rate and inflation rate, are transformed into natural logs.

Second, the coefficients of the 10-equation VAR model are then estimated over the period from 1965:1 through 1989:3 with a deterministic dummy variable included to represent the California lottery. The dummy variable takes on the value of 1.0 starting 1985:4 and is set to zero before 1985:4.

Third, the model regards the California and Nevada variables as endogenous and the national variables as exogenous. That is, the causation runs from the nation to California and Nevada and the California and Nevada economies are permitted to interact. Thus, forecasts of the Nevada variables beyond the end of the estimation period require a separate forecast of the national variables.

The original intent was to employ forecasts of national variables generated by the Federal Reserve Bank of San Francisco national VAR model; however, this has not proved feasible for a variety of reasons. Instead, several sets of assumptions about the national economy are used to generate forecasts of the Nevada economy. For example, the most recent description of the national economy was as follows:

> The national economy has continued to grow despite a wide range of opinions that a 'hard' or 'soft' landing will soon occur. It now appears that the unprecedented expansion has been due to two major factors: (1) oil price declines starting in 1986 and (2), fairly stable and noninflationary monetary policy. At the same time, there is growing evidence that a slowdown or in the opinion of some, an actual downturn is likely to take place in early 1990.
>
> This forecast report assumes that the national economy will not experience negative real GNP growth over the forecast period; instead, the report assumes three scenarios for real GNP over the forecast period: 1 percent, 2 percent, and 3 percent.
>
> Forecasts of U.S. civilian employment are obtained from an estimated function that expresses employment as a linear function of real GNP and a time trend. Estimates of this function over the period from 1965:1 through 1989:3 combined with each of the three forecasted real GNP growth rates provides three sets of forecasts of U.S. civilian employment. For all three growth rate scenarios, however, the commercial paper rate is assumed to increase in increments of .20 from the 1989:3 value of 8.39 percent to 10.79 percent in 1992:3. The inflation rate is assumed to increase in increments of .10 starting from a 5.00 percent value for 1989:4 to a value of 6.10 percent for 1992:3. The actual inflation for 1989:3 is 3.2 percent (Cargill, Dec. 21, 1989).

A note of caution should always be attached to forecasts of any modelling procedure. In particular, the Nevada VAR model is a short-term forecasting modelling and forecasts beyond one year are not reliable.

Since the model generates forecasts of seasonally adjusted variables, a method is then employed to obtain forecasts of seasonally unadjusted data; that is, forecasts of the variables in the form the data is actually measured. Before discussing this method, we should first indicate why the model is based on seasonally adjusted data. There are two reasons for this. First, the national data with the exception of the interest rate are available in a seasonally adjusted form and second, including seasonal dummy variables makes it impossible to incorporate seasonal movement. This latter point is particularly important since the seasonal component of gaming revenue has changed significantly over the years; for example, the seasonal factor ranged from about 0.90 to 1.15 in the early 1970s but narrowed to about 0.94 to 1.04 in the late 1980s.

The forecasts of the seasonally adjusted values are then "recolored" by a forecast of the seasonal adjustment factors obtained from the X-11 procedure. This converts the forecasted seasonally adjusted values to forecasted values which include the seasonal movement. Annual growth rates are then computed for each quarter as the percentage change in the value for the quarter compared to the value four quarters in the past.

Model Evaluation and Future Agenda

The VAR model has proved to be a reasonably effective instrument for making short-run forecasts of the Nevada economy. It has done a good job in forecasting quarterly values of key variables; for example, Table 4 presents forecasts over a seven quarter period using actual values of the exogenous variables. The forecast errors for the levels of the variables are very small, though they are larger for gaming revenues and taxable sales than they are for industrial employment and personal income. In addition, the forecast error tends to increase as the forecast horizon increases. While evidence such as presented in Table 4 is encouraging, there are two important caveats.

First, in actual practice the forecast errors will be larger since forecasts of the exogenous variables are required to generate forecasts of the Nevada economy. Table 5 presents some information on the actual forecasting performance of the VAR model in the most realistic setting. Table 5 is taken from the January 1988 issue of *Western Blue Chip Economic Forecasts.* A number of Nevada forecasts are published; however, the various forecasts are generated by a wide range of methods. The table illustrates the VAR models forecasts along with others generated in late 1987 for growth rates of selected variables in 1988. Actual 1988 growth rates for Nevada personal income, gaming revenues, and industrial employment listed as wage and salary employment were 11.9, 7.5, and 8.0 percent respectively. Thus, the VAR model (as well as several other approaches listed in Table 5) provide satisfactory forecasts for 1988; however, this in no way means that satisfactory forecasts will continue to be generated.

Forecasting models should never be "fixed in cement." Development of a forecasting model is an evolutionary process and in this respect, the Nevada VAR model will constantly be reevaluated in light of new information and forecast performance. The most pressing need at this time is to investigate possible ways in which the model can be regionalized. The model currently is a state-wide forecasting mode; however, the differential growth of gaming revenues in the south and north provide a strong rationale to regionalize the model in some manner. In addition, alternative forecasting methods should be continually evaluated. In fact, the most effective forecasts might well be generated from several model forecasts.

Table 4
Forecasted and Actual Values: 1988:1 - 1989:3

	Gross Gaming Revenues (Millions)			Taxable Sales (Millions)			Industrial Employment (Thousands)			Personal Income (Millions)		
	Actual	Forecast	% Error	Actual	Forecast	% Error	Actual	Forecast	% Error	Actual	Forecast	% Error
88:1	1,035	1,035	-0.01	2,602	2,533	-2.64	514	515	0.20	17,507	17,676	0.97
88:2	1,051	1,076	2.37	2,939	2,857	-2.78	533	537	0.61	18,182	18,243	0.33
88:3	1,133	1,149	1.39	3,059	2,946	-3.68	546	550	0.64	18,776	18,783	0.04
88:4	1,050	1,067	1.59	3.169	3.071	-3.08	557	556	-0.23	19,550	19,324	-1.15
89:1	1,098	1,157	5.39	3,138	2,798	-10.81	554	553	-0.20	19,766	19,882	0.59
89:2	1,154	1,197	3.70	3,300	3,109	-5.79	570	572	0.28	20,394	20,425	0.15
89:3	1,213	1,263	4.14	3,423	3,152	-7.93	581	581	0.01	20,847	20,967	0.58
Average			2.65			-5.24			0.19			0.21

Note: Forecasts generated by using actual as opposed to forecasted values of the exogenous variables.

Table 5
Nevada Blue Chip Consensus Forecast

January 1988

1988
Annual Percent Change 1988 from 1987

Source:	Current $ Personal Income	Gross Gaming Revenues	Wage & Salary Employment	Population Growth	Housing Permits
Department of Employment Security	- - -	6.7	5.8	- - -	- - -
First Interstate Bankcorp	10.0	- - -	6.5	- - -	10.0
Legislative Counsel Bureau - Fiscal Analysis	8.7	- - -	4.0	2.8	(5.0)
Nevada Power Co. (a) (c)	10.1	5.5	4.9	4.6	(3.0)
Sierra Pacific Power (b)	9.0	5.0	3.8	2.4	3.0
Southwest Gas	7.3	7.2	4.2	3.2	(3.8)
University of Nevada at Las Vegas - CBER	8.1	7.1	5.0	3.8	(3.5)
University of Nevada at Reno (c) - BBER	9.5	7.5	5.5	4.0	- - -
Consensus Forecast - This Month	8.7	7.1	5.2	3.5	(0.6)
Last Month	8.7	7.1	5.2	3.5	(6.3)

(a) Forecast for Clark Co./Las Vegas only - excluded from consensus calculation.
(b) Forecast does not include Clark Co./Las Vegas - excluded from consensus calculation.
(c) Forecasts (except population) based on fourth quarter to fourth quarter changes.

Source: *Western Blue Chip Economic Forecast.* Economic Outlook Center, College of Business, Arizona State University. January 1988, p. 5.

Notes

[1] The terms "shock," "variance decomposition," and "deviation" are technical terms that refer to specific aspects of time series analysis. Cargill and Morus (1988) and Sherwood-Call (1988) provide some discussion of these terms; however, both provide extensive references to the more technical literature.

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Nevada Regional Models: Forecasting and Simulation

*by R. Keith Schwer and Thomas M. Carroll**

Introduction

Over the last several years the Center for Business and Economic Research at the University of Nevada, Las Vegas (UNLV) has been refining econometric models of the Nevada economy. The models, originally developed by Regional Economic Models,[1] have been calibrated by the Center to reflect unique Nevada conditions. As a planning tool, the models can predict the effects that changes in the national economy will have on the Nevada economy and can simulate the impacts of both public or private sector initiatives. Consequently, these models ofter analysts a set of useful tools for both forecasting and simulating changes in Nevada's economy.[2]

Of the UNLV regional models' many uses, we selected three illustrative examples to demonstrate their capabilities. These examples address the effects of the following:

1) Increases in hotel-casino construction in the Las Vegas metropolitan area (Clark County);

2) The interaction between mining employment, gold prices and technological advances on general employment, output and income in rural Nevada; and

3) The contribution of legislative sessions to the economy of the Carson City and Reno area.

An in-depth analysis of such a far-ranging list of issues falls well beyond the scope of our paper. Rather, we offer only encapsulated discussions of each issue as it ties directly to our objective of highlighting the usefulness of these forecasting and simulation tools for Nevada.

Overview of the UNLV Regional Economic Models

The UNLV Nevada Models account for the interactions of five substate regions: Clark County, Washoe County and Carson City, Nye County, Lincoln County, and the remainder of the state. The region specifications, using counties as the primary units, arose from the modeling requirements associated with the proposed Yucca Mountain high-level nuclear waste repository. Each substate regional model is based on interactions between 53 industries within that region as well as interactions with the other regions. For example, the construction of a new hotel-casino in Clark County will initially stimulate construction employment and income in Clark County. This in turn stimulates those industries which supply the construction sector with inputs. This growth in employment, output and income in turn stimulates other industries (the non-hotel and non-hotel supplying firms) within Clark County. In addition, growth in Clark County spills over to the other regions of the state, whose growth in turn effects Clark County. Approximately 1,600 equations replicate economic linkages within each region. Capturing these linkage effects renders the UNLV Nevada model an improvement over simple extrapolative models containing no interregional linkages and but a few ad hoc relationships.

The essential components of the regional forecasting model may be summarized as a blending of economic base, Keynesian, and Leontief concepts. The economic base as a model organizing principle focuses on those sectors of the regional economy which primarily export goods or services. These exporting sectors for open regional economies generate important dollars available for expenditure recycling. Expenditure recycling in the Keynesian formulation suggests separate consideration of private consumption, investment (and the importance of capital capital stock adjustment), and trade with other regions. The Leontief input-output structure offers further specification and insight into industry linkages. In addition, other concepts offer further refinement to the model's structural base. These additional concepts include: relative wage rate influences, modeling of the difference between regional and national purchase coefficients, regional shares of interegional and international trade, relative production costs, relative industrial sales prices, relative economic opportunity, and migration.

Flow charts prove useful in understanding the interrelationships contained within sophisticated econometric models such as ours. Flow Chart 1 (see p. 17) shows the major linkages of a region's model for a given influence initiated through a policy variable, for example, state and local government spending. The influence of government spending changes all other variable values determined within the model. One may represent the influences in the flow chart by lines connecting boxes. Each box represents a collection of equations representing primary economic activities.

The major data bases used in the model come from federal sources, such as the Bureau of Economic Analysis (BEA), the Bureau of Labor Statistics (BLS) and County Business Patterns (CBP). These data bases contain employment, earnings and wages from all major regions, states, and counties in the United States from the year 1969 to 1987. For the 53 basic industrial

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categories or 466 industries the data bases include employment, production costs, wage costs, labor intensity, wage rate changes, and over 20 other concepts. Since the models use federally generated data, not all results from the model will necessarily agree with state and local information. In most cases these differences tend to be small, often reflecting the adjustment of state-provided data by federal agencies to the aggregation of the states' totals to national totals. One noteworthy exception is the increasing difference between Nevada's estimate of its population and the estimate of the U.S. Bureau of Census.

Because Nevada is growing so rapidly, data soon become obsolete. Events in 1900, 1920 or even 1950 may have little relevance to Nevada today. In addition, many of the important economic variables are only measured or estimated annually. As a result, many traditional time series or econometric models of Nevada often encounter insufficient numbers of observations for statistical purposes. Faced with insufficient number of observations to estimate complex relationships, one either formulates more simplistic models than one might otherwise use or one uses information economizing methods. One data economizing method, pooling of time-series and cross sectional data, has been used in the Nevada models. The application of data pooling techniques allow the models to estimate complex relations that are statistically robust. Using generally accepted regional economic theory, the models separate each industry into export-base, intermediate supplier, and internal base categories. The export base components link their respective national industries, with regional modifications for shifts in relative costs. Detailed composition differences in its industries, changes in labor use per unit of cost, and specific industry trends are also analyzed. Intermediate supply, the demand for local products as input into further production, depends upon national and regional factors. Lastly, the internal base category constitutes spending of local income on locally produced goods and services.

A sophisticated forecast of the 53 U.S. industries from the year 1988 through the year 2000 is the basis of the control forecast for each region. Simulations of alternative futures for one or more regions are accomplished through the use of policy variables, often referred to in econometrics literature as exogeneous variables. The control forecast is the predicted path of the regional economy in the absence of any policy changes; while the simulation forecast is the path the economy would take if the policies in question were implemented. By computing the percentage change in key variables of interest between the simulation in question and the forecast, the policy impacts can be summarized.

Impact of Hotel-Casino Construction on Clark County

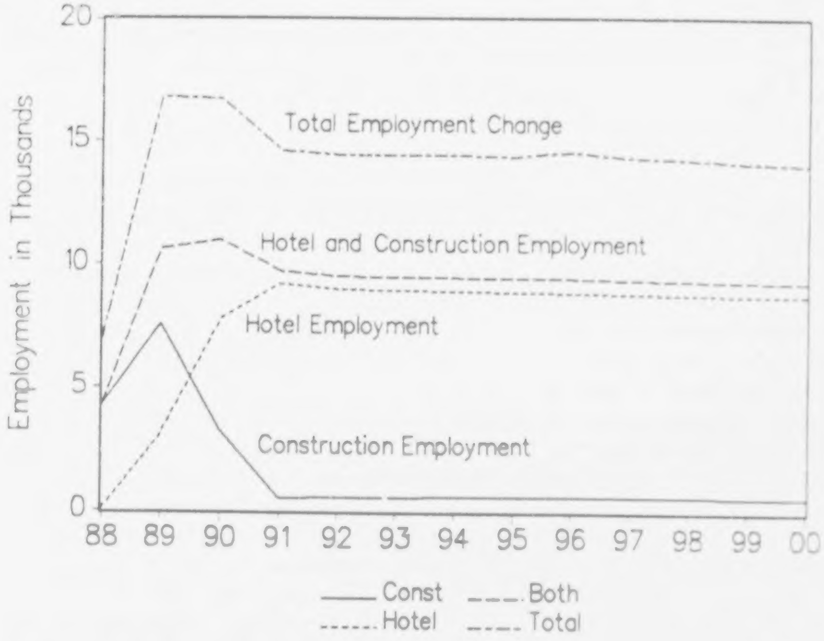
Clark County, Nevada is in the midst of an unprecedented building boom which portends a temporary increase in construction employment and a long-term employment increase in the hotel industry. Since this boom is not the consequence of predictable national trends, the control forecasts for Clark County and other regions of the model did not predict this increase in construction and hotel employment. To correct this forecast, an analyst needs to specify the values of the policy variables. Special translator variables (predefined collections of policy variables) allow for the distribution of new hotel and motel construction expenditures to be incorporated easily into the model. For example, let's assume that two hotel-casino complexes are constructed during the 1988-1990 period. The Desert Illusion, the first hotel-casino, is an expensive 3,000 room complex whose estimated construction costs equal $600 million dollars. It can also be surmised that 60 percent of these costs are incurred in 1988 and the remaining 40 percent in 1989. Camelot-Camelot, the second project, is a less expensive 4,000 room complex estimated to cost $400 million. We presume that 60 percent of these costs occur in 1989 and 40 percent will be realized in 1990. Consequently, the total costs for the two projects, introduced as expenditures associated with the special translator variable, are $300 million for 1988, $500 million for 1989, and $200 million for 1990. In this way we begin a simulation by specifically estimating the amount and timing of new expenditures.

If a constant dollar forecast is desired (which it is), policy variable changes must be calibrated in 1977 dollars, implying price levels approximately half those of 1988. Hence,to simulate hotel-casino construction, we increase translator policy variable 110 (measured in millions of dollars) by 150 in 1988, 250 in 1989, and 100 in 1990. The model then parcels out employment and output effects among the 53 sectors of the regional economy.

A new hotel-casino complex requires about one-and-one-half employees per hotel room using a conventional rule of thumb. However, the simple rule of thumb makes no allowance for economic interactions; the UNLV model does. Using the translator variables and the assumed expenditure stream, we estimate that 3,008 additional hotel workers would be hired in 1989, 4740 workers would be hired in 1990, and 1,463 individuals would be added in 1991. Ultimately, an increase of 9,197 workers or 1.31 direct jobs per hotel room for the proposed expansion would be realized. This number of workers is slightly smaller than the 10,500 that would be predicted using the 1.5 workers per hotel-casino room rule of thumb. The model yields a more conservative estimate of hotel employment. The reason for this conservative employment increase is two fold: 1) we can expect that the occupancy rate in the Las Vegas area will decrease with the rapid introduction of new rooms, and 2) some smaller casino properties may have difficulty competing, leading to business failure and employment cutbacks.

The impacts of hotel-casino construction on the Clark County economy are displayed in Table 1 and Figure 1. Construction employment increased dramatically during the 1988-1990 construction phase. Construction employment was 18.3 percent above the control forecast in 1988, 30.5 percent above the control forecast in 1989, and is projected to be 12.7 percent above the control forecast for 1990. After 1990, construction employment is projected to be only slightly above the control forecast, as housing is constructed for the additional population generated by the increased hotel employment.

Figure 1: Employment from Casino Construction



In 1989 the total employment impact of new hotel-casino employment peaks at 4.5 percent above the control forecast. After construction, the employment stimulation drops to 3.5 percent above the control forecast, gradually declining to slightly less than 2.5 percent above the control forecast for 2000.

The UNLV Nevada model's migration subroutine bases in-migration and out-migration on wage differentials between the region of interest (in this case, Clark County) and the rest of the nation. Total employment is expected to increase by 2.5 percent above the control forecast by the year 2000 while total population is forecasted to increase by only .8 percent above temporary increases in construction employment. Permanent increases in hotel and indirect employment are predicted to result from reductions in unemployment, increased labor force participation, net population growth, and net migration.

Personal disposable income, in constant 1988 dollars, increased by 3.7 percent above the control forecast in 1989, the year of greatest construction activity. After construction is complete, personal disposable income is forecast to be 3 percent above the control forecast. By the year 2000, the difference in personal disposable income with and without the new casinos is predicted to be 2.6 percent. Since income increases due to hotel-casino construction and operation are predicted to outstrip population increases, per capita income should increase by 2.4 percent in the year 1990, eventually settling at 1.8 percent above the control forecast by the year 2000.

The numerical findings in Table 1 are paralleled in Figure 1. Note the bulge in total employment follows the increase in construction employment during the 1988-1990 period. After 1990, employment gains, caused by increased hotel-casino employment and associated secondary employment, are dampened slightly until the year 2000.

Gold Prices, Technology and Mining Employment in Rural Nevada

The UNLV Nevada model is compatible with other forecasting techniques. To illustrate this, past mining employment in rural Nevada has been affected by gold prices and the impact of mining technology.[3] We can introduce technology into the model with a proxy measure. Using multiple regression analysis, we find that 85 percent of variations in rural mining employment between 1976 and 1987 (expressed as a logarithm) can be attributed to the price of gold (lagged one year and also expressed as a logarithm) and a time trend. These results indicate that each one percent increase in gold prices in one year increases mining employment by .24 percent the next year. With gold prices held constant, rural Nevada mining employment would have increased at 4.25 percent at a continuously compounded rate. We interpret this time-based increase in mining to be caused by innovations in mining techniques.

The results of this regression analysis are now used to simulate future employment trends in rural Nevada mining employment. The model cannot, of course, predict precisely what future gold prices will be. For illustrative purposes, let us assume that gold prices peak in 1988, follow a downward trend until 1994, then recover to peak again in 1996, then decline through the rest of the century. Note that this future gold price scenario imitates the past in large measure. Under these conditions the technological trend in mining employment will largely dominate the gold-price effect through the 1990's. Using this historically based scenario and the application of regression analysis, we forecast a steady increase in mining employment from approximately 6,000 miners in 1987 (the last year of the model's historical data) to nearly 11,000 in the year 2000. The control forecast of the UNLV model, however, predicts that mining employment in rural Nevada will hover at about 6,000 miners through the remainder of the century. The contrasting predictions of mining employment are presented in Figure 2.

Using a new regression analysis forecast of mining employment based on a new forecast of mining employment obtained from our regression analysis a future of more optimistic mining innovation is reflected. One may then, reflecting a future of more optimistic mining innovation, "plug" these numbers into the UNLV Nevada model by changing the mining employment policy control variable.

Using the difference between the control forecast of mining employment and our regression based forecast one may simulate the impact the technology advancement will have. After completing the new simulation, the differences in key economic influences for the control and simulation forecasts

Table 1: Impact of New Hotel Construction on Clark County Economy

	Construction Employment (in thousands)			Hotel Employment (in thousands)			Total Employment (in thousands)		
Year	Without Casinos	With Casinos	Percent Difference	Without Casinos	With Casinos	Percent Difference	Without Casinos	With Casinos	Percent Difference
1988	23.190	27.441	18.331	82.239	82.266	0.032	359.071	365.989	1.926
1989	24.734	32.279	30.505	86.442	89.500	3.538	370.356	387.168	4.539
1990	25.535	28.768	12.657	94.242	101.976	8.206	391.440	408.169	4.274
1991	27.220	27.721	1.841	99.946	109.143	9.201	410.679	425.298	3.560
1992	28.524	29.047	1.834	105.585	114.551	8.492	429.295	443.736	3.364
1993	29.367	29.903	1.826	111.627	120.561	8.003	446.096	460.523	3.234
1994	30.178	30.730	1.826	117.177	126.080	7.598	460.694	475.131	3.134
1995	30.491	31.042	1.805	122.237	131.110	7.259	473.932	488.308	3.033
1996	33.713	34.291	1.715	130.763	139.604	6.761	503.421	518.003	2.897
1997	34.213	34.780	1.657	138.944	147.747	6.336	521.103	535.457	2.755
1998	35.705	36.266	1.573	148.812	157.576	5.889	545.885	560.157	2.614
1999	36.390	36.938	1.508	151.915	160.653	5.752	559.924	574.062	2.525
2000	37.163	37.712	1.478	152.024	160.745	5.736	572.742	586.805	2.455

	Population (in thousands)			Personal Disposable Income (in billions 1988 dollars)			Per Capita Income (in 1988 dollars)		
Year	Without Casinos	With Casinos	Percent Difference	Without Casinos	With Casinos	Percent Difference	Without Casinos	With Casinos	Percent Difference
1988	620.251	623.580	0.537	9.110	9.254	1.577	$14,688	$14,840	1.035
1989	641.517	649.611	1.262	9.610	9.969	3.736	$14,980	$15,346	2.444
1990	663.764	671.756	1.204	10.114	10.469	3.512	$15,237	$15,585	2.280
1991	685.676	692.695	1.024	10.770	11.102	3.088	$15,707	$16,028	2.044
1992	707.604	714,539	0.980	11.396	11.746	3.076	$16,105	$16,439	2.075
1993	729.206	736.156	0.953	12.075	12.444	3.051	$16,560	$16,904	2.078
1994	750.820	757.832	0.934	12.730	13.117	3.045	$16,954	$17,309	2.092
1995	771.770	778.822	0.914	13.305	13.705	3.011	$17,239	$17,598	2.079
1996	799.079	806.134	0.883	14.112	14.538	3.019	$17,661	$18,035	2.118
1997	820.591	827.563	0.850	14.589	15.009	2.877	$17,779	$18,136	2.010
1998	844.296	851.186	0.816	15.258	15.684	2.789	$18,072	$18,426	1.957
1999	864.366	871.237	0.795	16.078	16.512	2.701	$18,600	$18,952	1.891
2000	883.596	890.479	0.779	16.761	17.199	2.613	$18,969	$19,314	1.820

generate impacts, see Table 2. In this case, assuming gold prices increase and technology advances, we find a 10.6 percent increase in mining employment over the control for 1989. This increase of 648 miners is matched by a forecasted increase in total employment of 1,105 in 1989. This translates into an employment multiplier of 1.7 for miners in rural Nevada. That is, each ten additional mining jobs generate seven non-mining jobs, often referred to as indirect jobs. by the year 2000, mining employment under simulated conditions of rapid advancement would exceed the control forecast of employment by nearly 5,000 miners, leading to an increase in total employment of 9,700 over the control forecast. This 9 percent increase in employment would stimulate a population increase of 2.6 percent by 2000. Gross regional product would be 25 percent higher with the increased mining employment; which in turn would translate into income increases of 11.3 percent. Again, with income increases outpacing population increases, per capita income would increase.

The Impact of Legislative Sessions on Carson City and Washoe County

Our third demonstration involves a bit of detective work: "What is the impact of past legislative sessions on the economy of region 2 (Carson City and Washoe County)?" To answer this question, two things must be determined: how many person-days were devoted to the last two legislative sessions and how much lobbying expenditure was associated with each session.[4] Then, the percent change in these factors for the 1987 and 1989 sessions (ignoring the 1989 special session as an aberration) were taken and the same growth assumed through the year 1999. The results are presented in Table 3.

According to the projections, the 151 day session was equivalent to 52 state workers employed for an entire year (52 = 125 legislators and staff for 151/365 of a year). In 1989, the longer session was equivalent to 58 government workers on a full-time equivalent basis. Extrapolating the increase in session length through 1999, we predict that the legislative sessions will reach 276 days by the end of this century, tying up 95 person days. Similarly, we predict that total cost of legislative sessions (government costs plus reported lobbyists expenditures) will grow from slightly less than $6 million in 1987 to over $15 million by 1999.

Again, to implement our economic forecast, we can change selected policy variables. For example, policy variable 50 (state and local government employment) can be increased by the predicted person days for the legislative session in each odd-numbered year. Policy variable 182 (final demand by state and local government, other), can also be altered by the amount of total expenditure in 1977 dollars.

As before, the model generated forecasts for selected categories; and the results of this simulation are presented in Table 4. In this case the direct expenditure and employment impacts of legislative sessions had only a small impact on the Reno-

Figure 2: Gold Prices and Mining Employment

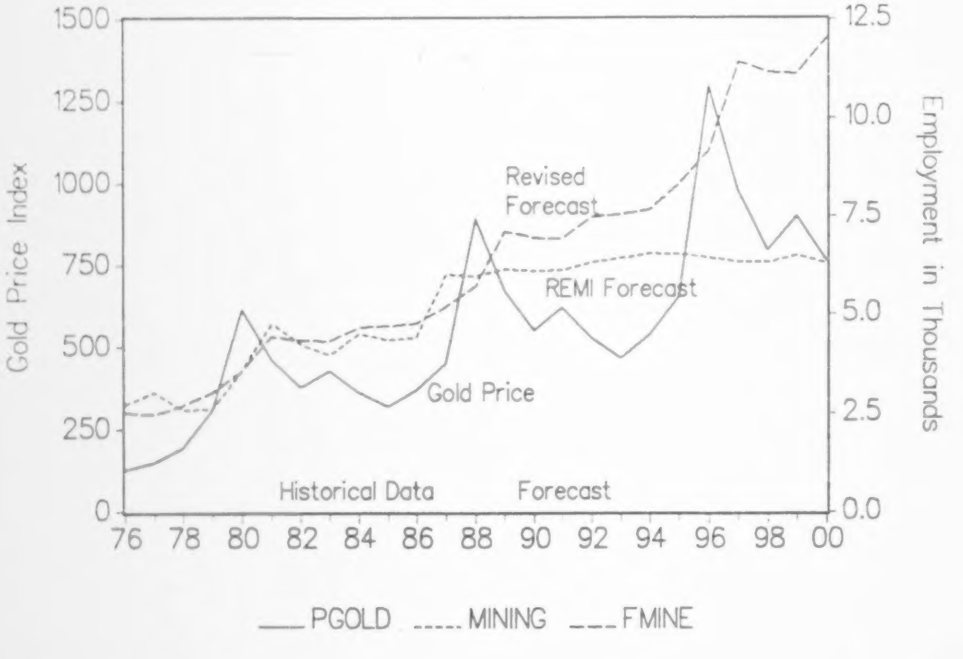


Table 2: Impact of Mining Boom on Rural Nevada

Year	Mining Employment (in thousands) Control	Simulation	Percent Difference	Total Employment (in thousands) Control	Simulation	Percent Difference	Total Employment (in thousands) Control	Simulation	Percent Difference
1988	5.958	5.958	0.000	73.194	73.194	0.000	121.822	121.822	0.000
1989	6.130	6.778	10.575	75.403	76.508	1.465	125.243	125.754	0.408
1990	6.085	6.602	8.498	79.069	79.972	1.142	128.621	129.039	0.325
1991	6.100	6.562	7.569	82.305	83.139	1.013	131.927	132.314	0.293
1992	6.313	7.066	11.920	85.648	87.013	1.594	135.355	135.972	0.456
1993	6.412	7.084	10.485	88.472	89.712	1.402	138.667	139.234	0.409
1994	6.540	7.166	9.571	90.813	91.979	1.285	141.975	142.517	0.382
1995	6.516	7.793	19.595	92.549	94.889	2.528	145.027	146.076	0.723
1996	6.432	8.569	33.219	96.495	100.523	4.174	148.862	150.621	1.181
1997	6.304	10.689	69.571	98.978	107.234	8.341	151.987	155.496	2.308
1998	6.305	10.406	65.052	102.446	110.352	7.717	155.376	158.757	2.175
1999	6.488	10.322	59.100	104.583	112.108	7.196	158.391	161.662	2.065
2000	6.284	11.155	77.511	106.075	115.771	9.141	161.080	165.254	2.592

Year	Gross Regional Product (billions of 1988 dollars) Control	Simulation	Percent Difference	Personal Disposable Income (billions of 1988 dollars) Control	Simulation	Percent Difference	Per Capita Income (1988 dollars) Control	Simulation	Percent Difference
1988	2.735	2.735	0.000	1.659	1.659	0.000	$13,621	$13,621	0.000
1989	2.785	2.884	3.566	1.741	1.767	1.508	$13,899	$14,051	1.095
1990	2.954	3.038	2.864	1.821	1.845	1.275	$14,161	$14,295	0.947
1991	3.076	3.155	2.590	1.922	1.945	1.208	$14,569	$14,701	0.912
1992	3.197	3.327	4.057	2.020	2.058	1.870	$14,922	$15,132	1.407
1993	3.327	3.447	3.604	2.127	2.164	1.731	$15,338	$15,540	1.316
1994	3.439	3.553	3.327	2.223	2.261	1.664	$15,661	$15,861	1.278
1995	3.536	3.765	6.488	2.299	2.368	3.014	$15,850	$16,210	2.275
1996	3.738	4.139	10.738	2.384	2.502	4.966	$16,012	$16,611	3.741
1997	3.833	4.677	22.030	2.443	2.678	9.621	$16,075	$17,224	7.147
1998	3.995	4.826	20.800	2.517	2.755	9.451	$16,200	$17,353	7.121
1999	4.171	4.989	19.594	2.638	2.879	9.141	$16,652	$17,807	6.933
2000	4.309	5.391	25.111	2.731	3.039	11.284	$16,952	$18,388	8.473

Table 3: History and Projections of State Legislature Sessions

Year	Length	Cost (Thousands)	Employment	Lobbying Expenditure (Thousands)	Total Expenditure (Thousands)
1987	151	$5,769	52	$190	$5,958
1989	167	$6,723	58	$246	$6,969
1991	185	$7,835	64	$318	$8,153
1993	204	$9,131	70	$411	$9,542
1995	226	$10,642	78	$533	$11,175
1997	250	$12,403	86	$690	$13,093
1999	276	$14,455	95	$893	$15,348

Percent Change From Previous Session

Year	Length	Cost (Thousands)	Employment	Lobbying Expenditure (Thousands)	Total Expenditure (Thousands)
1987	-----	-----	-----	-----	-----
1989	10.6%	16.5%	11.5%	29.5%	17.0%
1991	10.8%	16.5%	10.3%	29.5%	17.0%
1993	10.3%	16.5%	9.4%	29.5%	17.0%
1995	10,8%	16.5%	11.4%	29.5%	17.1%
1997	10.6%	16.5%	10.3%	29.5%	17.2%
1999	10.4%	16.5%	10.5%	29.5%	17.2%

Table 4: Impact of State Legislature on Carson City – Washoe County Economy

Year	State and Local Govt. Employment (in thousands) Without Session	With Session	Percent Difference	Total Employment (in thousands) Without Session	With Session	Percent Difference	Population (in thousands) Without Session	With Session	Percent Difference
1988	19.049	19.049	0.000	188.294	188.294	0.000	277.793	277.793	0.000
1989	19.542	19.685	0.730	193.140	193.406	0.138	285.068	285.180	0.039
1990	20.074	20.074	0.001	204.511	204.515	0.002	293.289	293.292	0.001
1991	20.528	20.694	0.810	213.429	213.740	0.146	300.652	300.777	0.042
1992	21.010	21.010	0.001	222.280	222.284	0.002	308.029	308.033	0.001
1993	21.462	21.654	0.891	230.342	230.701	0.156	315.218	315.360	0.045
1994	21.946	21.947	0.002	236.818	236.819	0.000	322.148	322.153	0.002
1995	22.439	22.658	0.979	243.145	243.555	0.169	328.907	329.068	0.049
1996	22.950	22.950	0.002	252.561	252.560	-0.001	336.345	336.351	0.002
1997	23.473	23.729	1.092	260.616	261.092	0.183	342.968	343.150	0.053
1998	23.936	23.936	0.002	270.483	270.476	-0.003	349.835	349.841	0.002
1999	24.385	24.683	1.224	276.911	277.461	0.199	355.809	356.015	0.058
2000	24.794	24.795	0.002	282.076	282.065	-0.004	361.158	361.166	0.002

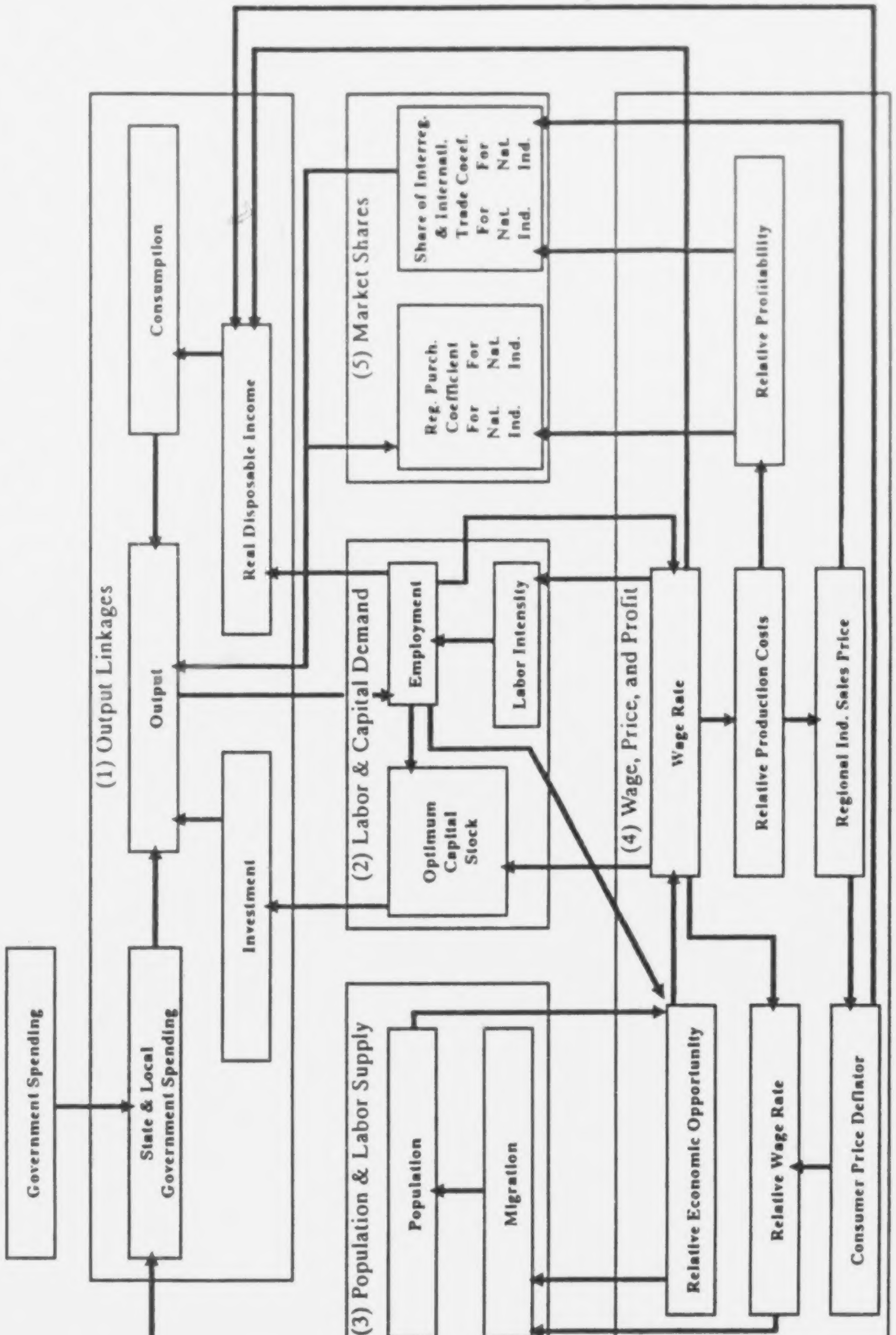
Year	Gross Regional Product (Billions of 1988 dollars) Without Session	With Session	Percent Difference	Personal Disposable Income (Billions of 1988 dollars) Without Session	With Session	Percent Difference	Per Capita Income (1988 dollars) Without Session	With Session	Percent Difference
1988	7.587	7.587	0.000	4.921	4.921	0.000	$17,714	$17,714	0.000
1989	7.628	7.636	0.111	5.142	5.147	0.100	$18,037	$18,048	0.061
1990	8.245	8.245	0.002	5.404	5.405	0.011	$18,426	$18,428	0.011
1991	8.616	8.626	0.115	5.707	5.714	0.115	418,983	$18,997	0.074
1992	9.000	9.000	0.005	5.991	5.992	0.017	$19,451	$19,454	0.016
1993	9.442	9.454	0.120	6.319	6.327	0.127	$20,048	$20,064	0.082
1994	9.813	9.813	0.004	6.615	6.616	0.019	$20,534	$20,538	0.017
1995	10.264	10.277	0.130	6.879	6.888	0.144	$20,913	$20,933	0.095
1996	10.809	10.809	0.002	7.122	7.124	0.023	$21,175	$21,180	0.021
1997	11.203	11.219	0.138	7.322	7.334	0.157	$21,350	$21,373	0.104
1998	11.729	11.729	0.000	7.561	7.563	0.025	$21,614	$21,619	0.023
1999	12.197	12.215	0.145	7.936	7.950	0.176	$22,303	$22,329	0.119
2000	12.660	12.659	-0.002	8.238	8.241	0.027	$22,811	$22,817	0.025

Carson City area. Employment attributed to legislative sessions accounted for less than one percent of state and local government through 1995, rising slightly above 1 percent in 1997 and 1999. Total employment increased by less than two-tenths of one percent in each legislative year, with virtually no population effects. Slightly more than one-tenth of one percent of gross regional product and disposable personal income can be attributed to legislative sessions. It follows that per capita income will increase by less than one-tenth of a percent through 1995, and by slightly more than one-tenth of a percent in 1997 and 1999.

Conclusions

The above exercises illustrate only a few of the characteristics of the UNLV Nevada Regional models. The models, as refined by the Center for Business and Economic Research at the University of Nevada, Las Vegas, begin with control forecasts based on the interaction between industries within the five Nevada regions, and between the Nevada Regions and the United States Economy. After formulating a policy scenario, the difference between the control and simulation paths trace the economic impacts. We demonstrated forecasts of the effects of hotel-casino construction in Clark County, mining activity in rural Nevada, and of legislative sessions on the Washoe County and Carson City economies. With the wealth of data contained within the model, the applications of the UNLV Nevada State model remain limited only by the imagination of the user.

Flow Chart 1
Model Linkages


(1) Output Linkages
Government Spending
State & Local Government Spending
Investment
Output
Consumption
Real Disposable Income
(2) Labor & Capital Demand
Optimum Capital Stock
Employment
Labor Intensity
(3) Population & Labor Supply
Population
Migration
(4) Wage, Price, and Profit
Relative Economic Opportunity
Relative Wage Rate
Consumer Price Deflator
Wage Rate
Relative Production Costs
Regional Ind. Sales Price
Relative Profitability
(5) Market Shares
Reg. Purch. Coefficient For Nat. Ind. For Nat. Ind.
Share of Interreg. & Internatl. Trade Coef. For Nat. Ind. For Nat. Ind.

Notes

[1] For a detailed discussion of the REMI models see:

(a) Treyz, George I., "Design of a Multi-Regional Policy Analysis Model," *Journal of Regional Science*, Vol. 20, No. 2, 1980, pp. 191-206.

(b) Treyz, George I. and B.H. Stevens. "The TFS Regional Modeling Methodology," *Regional Studies*, Vol. 19, No. 6, 1985, pp. 547-562.

(c) Kahn, M. Shahbaz, and G.I. Treyz. "A Community Economic Forecasting and Simulation System: Description of a Satellite Model," *Growth and Change*, Spring, 1987.

[2] A more detailed description of the UNLV Nevada Model is provided in "Understanding REMI," Center for Business and Economic Research, Sept. 28, 1989.

[3] Background on Nevada's mining industry was obtained from John L Dobra, "The Economic Impacts of Nevada's Mineral Industry," University of Nevada, Reno, MacKay School of Mines, 1988.

[4] Figures on lobbyist expenditure were obtained from "Lobbyist Listing, Nevada State Legislature, Sixty-Fourth Session, 1987" and "Lobbyist Listing, Nevada State Legislation, Sixty-fifth Session, 1989," both published by Lobbyist Registration Department, Donald A. Rhodes, Director.

An Econometric Model of Washoe County

*by Steven M. Ghiglieri**

I. Introduction

This paper presents an overview of a structural econometric model of Washoe County that was developed as part of my graduate studies at the University of Nevada, Reno and work at Sierra Pacific Power Company (Sierra).[1] I continue to maintain this model at Sierra and, therefore, refer to it herein as the Sierra Pacific Washoe County Econometric Model (SWCEM).

The need for reliable forecasts of regional economic activity and population growth are an essential element for effective planning and decision making on both the part of private businesses and public agencies. For businesses such information is important in constructing budgets and in making various financing, marketing, and operating decisions. For governmental and community leaders, such information is needed for land use and community development planning (e.g., zoning strategy and major project approvals), decisions regarding public infrastructure outlays (e.g., sewer, roadway, and public works expansions), and for the development of budgets and fiscal planning.

A structural econometric model such as the SWCEM is one method of providing both short-term and long-term forecasts of regional economic activity. Regional economic activity is characterized by numerous and complex interdependencies among economic and demographic variables. Econometric models try to describe the basic structure of regional economic activity with a series of mathematical equations. Each equation defines the relationship of a single economic variable to one or more other variables. Thus, the structure of the model defines an explicit cause and effect relationship among the variables in the model.

The equations that define the structure of a model can be either stochastic or nonstochastic in nature. The stochastic equations express the behavioral relationship among the left-hand side (LHS) variable and the right-hand side (RHS) variable(s). The parameters that define the nature of the behavioral relationship between the LHS and RHS variables in the equations are typically estimated from historical time-series data using any one of several common regression techniques. The regression results provide a means of empirically testing the validity of the structure expressed by the specifications of individual stochastic equations, which is an important feature offered by econometric models.

The nonstochastic equations of an econometric model express identity or definitional structural relationships such as accounting, equilibrium, technological, or institutional relationships.

The variables within econometric models can themselves be classified into two groups: 1) endogenous (induced) variables and 2) exogenous (autonomous) variables. The endogenous variables are those variables whose values are determined by the interaction of the structural relations in the model. In this sense, endogenous variables are analogous to dependent variables in single equation regression models. However, endogenous variables may appear on both the LHS and the RHS of equations in structural models. Thus, they are not only solved for in the model, but can also be used to explain the behavior of other endogenous variables. In this way simultaneous behavior among variables can be modeled.

The exogenous variables are those variables whose values are determined completely outside the model, or are determined within the model but in a previous time period (these are lagged endogenous variables). Exogenous variables are analogous to independent variables in single equation regression models, and they may appear only on the RHS of an equation. It is the exogenous variables of the model that jointly determine the values of the endogenous variables and, therefore, are the values that "drive" the model.

Once the stochastic equations of the model are estimated, the entire system of equations (i.e., the model) is solved simultaneously, allowing for the simultaneous interaction among the variables as defined by the structural equations. A structural econometric model therefore will have a dynamic life of its own that extends beyond that of any one of the individual equations of which it is composed. Accordingly, when evaluating a structural model one must look not only at the individual equations that make it up, but also must evaluate the behavior and performance of the model as a whole.

Structural econometric models can be built for a variety of purposes of which forecasting is just one. Models can also be designed for descriptive purposes, for hypothesis testing, for simulating the impacts of specific policy alternatives, and for conducting multiplier and impact analysis. The structure of an econometric model, and the evaluation of the model, will therefore be dependent upon the primary purpose(s) for which it is constructed.

The SWCEM was specifically developed for making long range forecasts and for meeting the planning needs of Sierra. Therefore its structure reflects these objectives. The SWCEM is used by Sierra to produce detailed forecasts of economic and

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demographic growth for 20-year periods. The model provides projections for many key economic and demographic variables at the detailed, disaggregated level that is required by Sierra for its load forecasting and resource planning process. No governmental or private agency currently has a continuing forecasting project that produces the detailed economic and demographic projections that Sierra's planning process requires. It was for this reason that Sierra felt the development of its own econometric model was important. Examples of specific results produced by the model include projections of wages, income, and employment for 10 sectors of the economy, plus population projections by 36 individual cohort classes. (The 36 cohort classes are defined in the Appendix.)

The model was first developed and forecasted in early 1986. The model was reevaluated and reestimated in late 1987, and a new long-term forecast was made. Except when discussing the *ex ante* simulation properties of the SWCEM model, only the 1987 version of the model will be discussed in this article.

Sierra makes the forecasts of the SWCEM available at no cost to anyone requesting it. Both of the long-term forecasts made from the SWCEM have been requested and used by many government and private organizations. Therefore, the model has been of benefit not only to Sierra but also to other businesses and planning agencies in the region.

The remainder of this article will be structured as follows: Section II briefly discusses the origins of regional econometric models, then focuses on those that have been developed for Nevada and Washoe County. Section III provides a broad overview of the structure of the SWCEM. Section IV discusses the estimation of the model. Section V discusses the simulation of the model and provides an evaluation of its accuracy. The accuracy of the model is evaluated for both *ex post* and *ex ante* simulations. Section VI provides a brief summary of the 1987 forecast. Section VII concludes the article, and will include some discussion of the usefulness of econometric models as forecasting tools of regional economic activity. The Appendix at the end of the article provides the equations and description of the variables used in the model.

II. Regional Econometric Models: Their Origins and Those Developed for Nevada

Regional econometric models are of fairly recent origin. In 1969, Lawrence Klein presented an important and influential paper that set forth a general method of specifying a regional econometric model. Prior to this date few regional econometric models had been developed, and those that had were quite simplistic in nature. Klein's formulation was highly theoretical and did not take account of the limitations on data for regional economies. Klein developed his model using the sectoral aggregate demand framework of Keynesian macroeconomics, which was (and continues to be) the framework around which most national econometric models are built.

Glickman's (1969 and 1971) econometric model of the Philadelphia SMSA is generally recognized as the pioneering effort in applied regional econometric model building. His Philadelphia model adopted the same general structural framework as suggested by Klein, but many compromises were made on account of data limitations. Virtually all regional econometric models developed since 1970 can be said to be decendants of the theoretical specification set forth by Klein and Glickman's applied model.

Since 1970 numerous regional econometric models have been developed as econometric model building has gained great popularity as a tool for regional forecasting and analysis.[2] Most of these models, however, have been developed for states or for major metropolitan areas.[3]

Chu and Wofford (1974) developed and published an econometric model for the state of Nevada. This model was fairly large, with 42 structural equations. The model was forecast for a four-year period, and it had good *ex post* simulation results. Little, however, was done with this model beyond its initial development.

In 1979, Cargill, Males, and Walker (Nov. 1979) did exploratory work on developing an econometric model for Washoe County. Their results were very encouraging. Hester and Rosen (1981) then extended the work of Cargill *et al.*, developing an econometric model for Washoe County from which a 10-year forecast of numerous economic and demographic variables was made. This model was somewhat unique in that on the basis of economic size and population, Washoe County was one of the smallest regions for which an econometric model had been developed. This model was structurally quite detailed and had good *ex post* simulation properties as indicated by the average mean absolute percent error statistics it reported.

Hester and Rosen significantly modified the model's structure and reestimated it in 1982. They published a 20-year forecast through the Washoe County Department of Comprehensive Planning (WCDCP), which was supporting their work on the model.[4] Since this effort, however, the model was never used again.

In 1986, the SWCEM was developed to meet Sierra's planning needs. The SWCEM was developed along the same general lines as Hester and Rosen's model. The SWCEM is similar in its general structure to that of Hester and Rosen's model; however, it differs substantially from their model in many important respects, especially in its specification of the individual structural equations and in the exogenous variables used to drive the model.[5]

III. General Structure of the SWCEM

The SWCEM is an annual forecasting model which covers a comprehensive set of key economic and demographic variables for Washoe County. The model describes the underlying structure of the Washoe County economy for ten aggregate industries, as well as models the population of the area within a cohort survival framework. The ten industries described by the model are AGR (agriculture), MIN (mining), CON (contract construction), TCP (transportation, communication, and public utilities), FIR (finance, insurance, and real estate), WRT (wholesale and retail trade), SRV (services), MNF (manufacturing), SGVT (state and local government), and

FGVT (the Federal government). The SRV industry is further broken down into two subsectors: GSRV (gaming, hotels, and recreation sector) and BSRV (the business services sector).

Wages, income, and employment are modeled and projected for each of these industries by stochastic behavioral equations, with the exception of the AGR and MIN industries, whose values in most instances were set by exogenous assumptions. Adequate time series data was not available to statistically model these two sectors. Both the AGR and MIN industries are very minor industries in the Washoe County economy and presently account for less than 1 percent of total employment and industry income.

The SWCEM permits a high degree of interaction among the various sectors of the Washoe economy, with many of the endogenous variables being determined in simultaneous relationships. The model also has recursive relationships, so its technical methodological framework is blockwise-recursive in nature.[6] The model is dynamic because it includes lagged endogenous variables in some equations.

As is always the case with regional modeling efforts, the SWCEM had to be designed around the economic and demographic data available for Washoe County, and around the availability of exogenous variables used to "drive" the model. Data used in the construction of the SWCEM, however, is among some of the most reliable time series data maintained by government agencies. The model uses labor force and employment data obtained from the Nevada Employment Security Department and income data maintained by the Bureau of Economic Analysis of the U.S. Department of Commerce.

The SWCEM uses exogenous variables from the DRI (Data Resources, Incorporated) Summer 1987 macroeconomic long-term trend forecast to "drive" the model. Thus, the SWCEM is essentially a "satellite" of the DRI model. The linkage between the national and regional models is unidirectional; national economic activity determines regional economic activity, but regional economic activity has no impact upon national economic activity. For economically small regions, such a one-way relationship between the nation and region is appropriate. This method of linking regional econometric models to national models was first advocated by Klein (1969), and virtually all regional models developed since then have used this approach. It is generally recognized, however, that a more regionalized specification would often be desirable, but the data for such a specification typically does not exist.

The structure of the economic portion of the model reflects the economic base theory of regional growth.[7] In this theory, some industries of a region are identified as exporting the bulk of their products or services to external or outside markets. These industries are referred to as being "basic." The income generated by the growth of the basic industries is the basis for growth in the non-exporting or "nonbasic" industries, and the regional economy in general. Of course, some industries may have a substantial mixture of basic and nonbasic elements.

In the SWCEM, AGR, MIN, FGVT, MNF, and GSRV subsector of the services industry are generally specified as being the basic industries of Washoe County. Employment, wages, and income in these basic industries are generally related to U.S. economic variables. The nonbasic industries' economic activity is in turn modeled as a function of basic sector variables or broad measures of regional economic activity, such as total regional income or employment. Estimation of the model provides an empirical test of the basic/nonbasic division of industries used in the model. The statistics (t-statistics, R-squares, etc.) for the individual behavioral equations of the model were generally good, empirically validating the basic/nonbasic structure and specification of the model.

Generally, employment in individual industries is modeled as a function of a demand and real wage rate variable for the particular industry. As such, the model relies on an inverse production function specification to describe industry employment. Unlike most regional econometric models, the SWCEM does not model industry output and, therefore, industry output is not used as the "demand" variable in the employment equations. Rather, a "proxy" variable for the demand for industry output is used in the employment equations along with the real wage rate.

This type of specification for the employment equations proved empirically successful. Following the basic/nonbasic framework of the model, employment in the basic industries is linked to national economic activity, while employment in the nonbasic industries is related to basic or regional economic variables. Also, in some employment equations (e.g., the equation of the GSRV industry) indicator variables were included to account for historical occurrences that could not be completely captured by the demand and real wage rate variables alone (such as the impact of Bally's location in Reno).

The unemployment rate is determined from a stochastic behavioral relationship relating the Washoe unemployment rate to the unemployment rate in the previous period, the U.S. unemployment rate, and the change in employment over the previous year. The Washoe County unemployment rate is then used to determine the number of unemployed and the total labor force in two simultaneous identity equations.

Nominal wage rates (defined as nominal labor and proprietors income per employee) for each industry are generally modeled as a function of nominal wage rates at either the national or regional level, depending upon whether the industry is basic or nonbasic. The nominal wage rates for the basic sectors are related to national wage rate variables, while nonbasic industries are modeled as a function of basic sector wage rates. The underlying assumption is that nonbasic industry wage rates will follow those in basic industries, since they must compete for labor in the same geographic labor market. The real wage rates are computed by dividing each industry's nominal wage rates by an appropriate price deflator.

The total income for an industry is determined as the product of its wage rate and the number of employees. The other components of area income are stochastically modeled, then aggregated in an identity equation, along with total income by industry, to arrive at total Washoe County personal income.

The economic portion of the SWCEM is demand oriented; the supply of various resources in Washoe County is assumed to expand to meet any increase in demand in the area. Such an implicit assumption is inherent in almost all regional econometric models. For small regions this assumption is generally appropriate, since the input supply curves for small regions are usually highly elastic, meaning that large supply increases will have relatively little effect on input prices. It should be recognized, however, that "institutional" supply constraints (such as zoning and growth policies) and natural resource constraints (such as water limitations) can impact the growth potential of a region. Such supply side constraints cannot be easily quantified in an econometric model, and generally must be incorporated through judgmental adjustment of the model.[8]

As noted, population for the model is forecasted by a detailed cohort survival model.[9] In this portion of the model, the population is divided into, and projected for, 36 mutually exclusive and exhaustive age and sex specific groups or cohorts. The cohort survival model is linked recursively to the rest of the model. It determines the natural increase of the population (births and deaths) for each period (a year) and the total labor force supply (those in the population who are 16 years of age and older in the labor force) from the current period (or native) population.

Total migration into or out of the region is determined as the difference between the total labor force demand (determined outside of the cohort survival model, in the economic component of the model) and the total resident labor force supply. Total migration is then allocated to the various age and sex specific cohorts via exogenous migration rates for each cohort.[10] To arrive at current period population for each cohort, the natural increase for each cohort is added to the migration of each cohort. Total area population is obtained by aggregating population over all cohorts.

In total, the SWCEM consists of 66 equations, 24 of which are behavioral and 42 of which are identities.[11] The model determines the value of 61 endogenous variables from 43 exogenous variables. In comparison to other econometric models developed for small regions, the SWCEM is of moderate size.

IV. Estimation of the SWCEM

In simultaneous systems, where variables in one equation feed back into variables in another equation, the error terms become correlated with the endogenous variables and, thus, OLS (ordinary least squares) regression parameter estimates can be both biased and inconsistent.

Theoretically, when simultaneity between equations exists, and when sample sizes are large, other estimation techniques, such as 2SLS (two-stage least squares) or 3SLS (three-stage least squares), can be shown to be superior to OLS as an estimation method. However, when sample sizes are small, as is usually the case in regional model building, there is no clear-cut theoretical basis for preferring 2SLS or a systems estimation technique, such as 3SLS, over OLS. In small sample cases, OLS has been shown to actually result in smaller mean squared errors (a composite measure of bias and variance in an equation or system of equations) than 2SLS.[12] OLS estimates are also known to be much less sensitive to errors in model misspecification than are estimates derived from systems estimation methods, in which misspecification in one equation can adversely affect the parameter estimates in all of the model's equations).[13]

Furthermore, several authors of regional econometric models have alternatively estimated their models with OLS, 2SLS, and various systems estimation techniques. They generally have found that, in terms of such accuracy measures as the root mean square percent error of the *ex post* simulations of their models, the OLS parameter estimates often perform as well or better than the parameters estimated from the various simultaneous estimation methods.[14]

Because the SWCEM has a small sample size and because of other data limitations which may compromise the structural specifications of the model's equations, OLS regression was used to estimate the individual stochastic equations even though the model has a simultaneous specification. In the few instances where the OLS equations' Durbin-Watson (DW) or Durbin-h (DH) statistics indicated the existence of first order serial correlation of the error terms at the 5 percent level of significance, those equations were reestimated by the two-step full transform (2SFT) regression method, which is equivalent to generalized least squares using OLS residuals to estimate covariances across observations.[15] The 2SFT method is an appropriate "correction" method for assuring desirable (efficient) parameter estimation properties when autocorrelation is present.

The stochastic equations of the model were estimated from annual time series data. The time series period used for estimation of most of the equations was from 1965-1984. In general, the system of equations estimated by OLS and 2SFT had very good statistical properties; with the *a priori* hypothesized signs for the parameters in all instances, with parameters (excluding the intercept term) generally significant well beyond the 5 percent level of significance, and with adjusted R-squares (the coefficient of determination) greater than 90 percent. In fact, of the 24 stochastic equations, only 2 equations - those for the unemployment rate and contract construction employment - had R-squares of less than 93 percent, and both of these equations had R-squares of well over 80 percent. Thus, the individual behavioral equations, over the history of the time series, closely predicted the actual values of the endogenous variables.

V. Simulation and Accuracy of the SWCEM

a. Simulation of the Model. While the individual equations of the model are linear at least in their parameters, enabling them to be estimated by linear estimation techniques, the system of equations as a whole is nonlinear in nature. Thus, the reduced-form of the model is not explicitly derivable. Simulation of the model requires a solution method capable of solving nonlinear systems thereby approximating the reduced-form of the model. The Gauss-Seidel iterative solution method was selected to solve the nonlinear system of equations.[16] This solution method is very efficient and converges rapidly when the system is stable.

The convergence criterion selected for the SWCEM was .001 and, for each period in the simulation, convergence to a solution was achieved with relatively few iterations. The model exhibited great stability over the 25-year simulation.

The final long-term forecast for Washoe County was produced by simulating the model for the 1981-2007 period. Simulation of the model was started in 1981 so that the 1980 census population estimates by age and sex specific cohorts could be used to prime the model. This avoided having to make independent estimates of the cohort population in a future year. (Because the model has a maximum lag of one period, simulation of the model requires one year of data to prime the lagged endogenous variables and to provide initial values for the Gauss-Seidel algorithm.)

Since the model simulation starts in 1981, the model was calibrated through constant adjustments in certain employment equations to approximately yield actual 1984-1986 (annual average) employment numbers published by the Nevada Employment Security Department (NESD). The population numbers, primarily through adjustment of the labor force participation rate, were also calibrated to approximate the Nevada Taxation Department's population estimates. (These population estimates are used by the State of Nevada for sales tax allocations, and as the official state population estimates. They are, however, estimates, subject to revision after the 1990 census results.)

The employment, income, and population numbers in subsequent years are the dynamic simulation results produced by the system of equations without further outside intervention into the model to adjust or direct results.

b. *Ex post* Accuracy of the Model. Above, it was discussed how the individual equations of the SWCEM have good "statistical fit" properties. However, when evaluating a simultaneous multi-equation model, the examination of individual equations of the model is only the first stage of model evaluation. For such models, it is even more important to evaluate how the system as a whole fits the history of the data. The "best fitting" individual equations, because of the complex structural interrelationships among individual equations of the model, do not always guarantee that the entire system will be the "best fitting" system. In fact, the system as a whole may not even be stable or solvable.

Evaluation of sample period performance of a system of equations is much more difficult and imprecise than for a single equation model, where a well-developed body of statistical procedures can be used to unambiguously test hypotheses and evaluate the adequacy of the statistical fit.

The most widely employed method for evaluating the statistical fit properties and accuracy of an econometric model is to simulate the model over the historical sample period from which the individual equations of the model were estimated. Simulation results of the model over the sample period can then be compared to actual historical values of the endogenous variables.

Several statistical measures exist for comparing the *ex post* simulation values for the endogenous variables to their actual historical values.[17] One of the more common statistical summary measures used to assess the predictive accuracy and fit of an econometric model is the average MAPE (mean absolute percent error).

Average MAPEs can be computed for each endogenous variable in the model. The MAPEs are simply a measure of the average dispersion of the estimated value of an endogenous variable about the actual historical value for the endogenous variable over the entire sample period simulation. For example, a MAPE of, say, 10 percent for an endogenous variable, can be interpreted as meaning that the model's predictions for the endogenous variable was, on average, ± 10 percent from the actual value of the endogenous variable. For any given period, the actual absolute error for the endogenous variable could be more or less than 10 percent; but for the entire sample period, the average error is 10 percent. Of course, the smaller the MAPEs, the better the model fits actual economic and demographic outcomes which occurred during the sample period.

In addition to having low MAPEs, it is also desirable in *ex post* simulations to have the individual predicted values of the endogenous variables randomly distributed about the actual values of the endogenous variable, since this randomness indicates that the model is free from systematic errors. Systematic errors in the *ex post* simulation may be an indication of possible model misspecification.

MAPE values for the *ex post* simulation of the SWCEM are shown in Table 1. Overall, the MAPEs are very good. Over the sample period, the model projects total area income with less than a 3 percent error, total employment with less than a 4 percent error, and area population with less than a 6 percent error. Given the rapid growth and the changing economic environment of Washoe County over this sample period, the *ex post* performance of the model is good, indicating that the system of equations as a whole "fits" the economic and demographic sample period experience of Washoe County quite well. In comparison with other regional models' *ex post* simulation results, the SWCEM's *ex post* simulation results are reasonable and comparable in magnitude.[18]

c. *Ex Post* Performance of Model in Tracking Turning Points in Economic Activity. Another important criterion for evaluating the forecasting ability of an econometric model is to examine how well it is able to track turning points in economic activity. Relatively low MAPE statistics, in and of themselves, do not necessarily mean that a model is capable of doing a good job of tracking regional business cycle behavior.

In general, the SWCEM does track the business cycle behavior of the Washoe County economy, with a fairly high degree of accuracy. Space limitation prohibits a detailed discussion of this point, but with a few minor exceptions the model was able to track turning points (both changes in direction and trends) in economic activity for the most important economic and demographic variables, including personal income, the unemployment rate, aggregate employment, SRV and GSRV employment, and population.[19] The only significant problem with the tracking of turning points occurs with manufacturing (MNF) employment. The difficulty with the MNF employment

Table 1
Ex Post Dynamic Simulation of the SWCEM From 1965 Through 1984: Mean Absolute Percent Error Statistics for Selected Endogenous Variables of the Model

Endogenous Variable	Number of Observation[1]	Mean Absolute Percent Error[2]
I. Wage Rate and Income Variables		
Nominal Wage Rate: MNF	19	1.59
Nominal Wage Rate: SRV	19	1.04
Nominal Wage Rate: FIR	19	6.21
Nomnal Wage Rate: CON	19	3.49
Nominal Wage Rate: TCP	19	3.87
Nominal Wage Rate: WR	19	1.56
Nominal Wage Rate: SGV	19	1.97
Nominal Wage Rate: FGV	19	5.04
Labor and Proprietors Income: MNF	19	7.91
Labor and Proprietors Income: SRV	19	4.06
Labor and Proprietors Income: FIR	19	7.29
Labor and Proprietors Income: CON	19	10.61
Labor and Proprietors Income: TCP	19	4.06
Labor and Proprietors Income: WR	19	2.85
Labor and Proprietors Income: SGV	19	4.36
Labor and Proprietors Income: FGV	19	6.26
Total Labor and Proprietors Income	19	3.14
Federal Government Transfers to Persons	19	3.19
Income Adjustment for Residence	19	137.79
Dividends, Interest, and Rent Income	19	4.59
Contributions for Social Security Insurance	19	4.11
Total Personal Income	19	2.50
Per Capita Income	19	3.52
II. Employment Variables		
Employment: MNF	19	8.95
Employment: SRV	19	4.21
Employment: BSRV	19	3.64
Employment: GSRV	19	5.96
Employment: FIR	19	3.89
Employment: CON	19	12.65
Employment: TCP	19	3.52
Employment: WR	19	3.11
Employment: SGV	19	4.61
Employment: FGV	19	3.34
Employment: Establishment Based	19	3.03
Employment: All Industries	19	3.00
III. Labor Force and Population Equations		
Employment: Civilian Labor Force	19	3.33
Unemployment Rate	19	12.30
Number of Civilian Labor Force Unemployed	19	12.01
Total Civilian Labor Force	19	3.03
Labor Force Participation Rate[3]	15	0.41
Population	19	4.60

Notes to Table 1:

[1] The *ex post* simulation begins with values in the year 1965 and continues through 1984, a 20-year period. This is the time period over which most of the individual equations were estimated. However, since the model has a maximum lag of one period for endogenous variables, the 1965 values must be used to "prime" the lags in the model, and are not simulated. Thus, the MAPE values for the endogenous variables are computed for the 19-year period of 1966-1984.

[2] The MAPE (mean absolute percent error) for the endogenous variables is computed as follows:

$$MAPE = ABS((1/N) \cdot \sum_{i=1}^{N}((X^{P}_{i} - X^{a}_{i}) / X^{a}_{i})) \cdot 100$$

where MAPE = mean absolute percent error for an endogenous variable
i = ith observation (year)
X^{P}_{i} = simulated (predicted) value of the endogenous variable for the ith year
X^{a}_{i} = actual value of the endogenous variable for the ith year
N = total number of observations (years simulated)
ABS = takes the absolute value of the argument contained in the parentheses

[3] The labor force participation rate equation was estimated over the 1960-1980 period. Thus, only 15 years (1966-1980) were used to calculate the MAPE for this variable.

Table 2

Ex Ante Accuracy of the 1986 Version of the SWCEM

(population and employment in thousands; income in millions of $)

	1986			1987			1988			Overall Mean Absolute
	Actual	Predicted	% Error	Actual	Predicted	% Error	Actual	Predicted	% Error	1986-88
Population	231.8	231.9	0.04	236.5	238.0	0.63	244.5	244.2	-0.12	**0.26**
Employment: MNF	8.2	8.4	2.4	8.4	9.2	9.5	8.7	9.6	9.4	**7.1**
Employment: SRV	51.1	50.7	-0.78	53.6	52.9	-1.3	55.3	55.1	-0.36	**0.81**
Employment: BSRV	21.7	19.8	-8.8	23.3	20.2	-13.3	24.3	20.6	-15.2	**12.4**
Employment: GSRV	29.4	30.9	5.1	30.3	32.6	7.6	31.0	34.5	11.3	**8.0**
Employment: FIR	6.8	6.6	-2.9	7.0	7.0	0.0	6.9	7.2	4.3	**2.4**
Employment: CON	6.8	6.0	-11.8	6.9	5.9	-14.5	7.6	6.2	-18.4	**14.9**
Employment: TCP	8.6	8.1	-5.8	9.0	8.4	-6.7	9.3	8.6	-7.5	**6.7**
Employment: WR	28.3	28.3	0.0	29.6	29.3	-1.0	31.6	30.4	-3.8	**1.6**
Employment: SGV	12.8	14.1	10.2	13.2	14.4	9.1	13.9	14.7	5.8	**8.4**
Employment: FRV	2.8	2.9	3.6	2.9	3.0	3.4	2.9	3.0	3.4	**3.5**
Employment: TotalGov't	15.6	17.0	9.0	16.1	17.4	8.1	16.8	17.7	5.4	**7.5**
Employment: Establish't-Based	126.2	125.9	-0.22	131.9	130.8	-0.86	138.5	135.7	-1.99	**1.02**
Labor & Proprietors' Income	2,946	2,855	-3.1	--	--	--	--	--	--	**3.1**
Federal Gov't Tranfer to Persons	132	145	9.8	--	--	--	--	--	--	**9.8**
Dividends, Interest & Rent Income	768	732	-4.7	--	--	--	--	--	--	**4.7**
Contributions for Social Security	449	441	-1.8	--	--	--	--	--	--	**1.8**
Total Personal Income	3,923	3,789	-3.4	--	--	--	--	--	--	**3.4**
Per Capita Income ($1,000)	17.5	16.6	-5.1	--	--	--	--	--	--	**5.1**
Unemployment Rate (%)	5.2	6.7	28.8	5.7	6.4	12.3	4.6	6.1	32.6	**24.6**

Sources:

Population Numbers: State of Nevada, Department of Taxation

Employment Numbers: Stateof Nevada, Nevada Employment Security Department.

Income Numbers: U.S. Department of Commerce, Bureau of Economic Analysis.

Note: All actual data, except population numbers, were those available as of February 1989. The population numbers are those estimates available as of October 1989.

owes to data limitations which impact the equations specification. The MNF employment specification links Washoe County MNF employment to U.S. MNF output. The Washoe County manufacturing industry is obviously not nearly as broad-based and diversified as the national manufacturing industry. Therefore use of such a broad measure as national manufacturing output to explain Washoe County employment has drawbacks. While the MNF employment equation has generally good statistics, the relatively large CV statistic for the equation (see the Appendix, page 32) indicates that the equation may have predictive shortcomings.

d. Ex ante **Performance of the 1986 (Original) Model.** While the *ex post* simulation of the SWCEM indicates that the system of equations as a whole fits the economic and demographic sample experience of Washoe County quite well, an even more stringent test of the model is to see how accurately it forecasts the endogenous variables outside of the sample period. This constitutes an *ex ante* test of the model. Table 2 provides the *ex ante* results for five key endogenous variables in the original (1986) version of the SWCEM. The original model is used for this purpose, since there are not enough out-of-sample observations available to conduct this analysis for the 1987 model.

The *ex ante* test results of the model are very encouraging, predicting values of key variables quite accurately three years outside the interval of model estimation. The last column in Table 2 gives the Mean Absolute Percent Errors for each of the variables shown. The MAPE interpretation is the same as for for the *ex post* simulation.

Based on the MAPE over the 1985-87 period, the 1986 model has predicted total population and establishment-based employment with an average error of 1 percent or less. (Of course, the "actual" population values being compared to the model's projections are themselves estimates made by the Bureau of Business and Economic Research , and are subject to revision after the 1990 census results.) Total services employment projections have deviated on average from actual experience by less than 2.25 percent, and the gaming sector's employment projections have been in error an average of less than 6.5 percent. The average error for aggregate government employment has been 7.2 percent. Therefore, even with a three-year *ex ante* forecast horizon, the SWCEM has demonstrated that it can be a rather accurate predictor of key economic and demographic measures of Washoe County.

VI. Summary of the 1987 SWCEM Forecast

Table 3 below summarizes the 1987 SWCEM forecast for several key endogenous economic and demographic variables. Much more detailed tables summarizing this forecast are available from the Resource Planning Department of Sierra Pacific.

Total Washoe County population is expected to reach 379,400 in the year 2007. Over the 1987-2007 period, the population is expected to increase at an average annual rate of 2.3 percent. This rate of population growth is well below the 3.9 percent rate of population growth experienced over the 1965-1986 period, and is also below the 3.0 percent growth rate for the 1980-1986 period. As is seen from Table 3, the model projects the population growth rate to gradually fall over the forecast horizon, averaging just 2.0 percent growth over the 2002-2007 period.

In addition to the slowing of the population growth rate, a general aging of the population is expected to occur. In 1980, 8.4 percent of the county's population was 65 years of age and older, but by 2007 the model projects that 9.7 percent of the population will be in this age category. The percentage of the population age 30 but under age 65 is also expected to increase significantly, from 43.1 percent in 1980 to 47.3 percent by 2007. This general aging of the population is consistent with national age distribution trends and projections. The upward shift in the age distribution at the national level is caused by the maturing of the population from the relatively high birthrate years of the 1940's, and increased longevity.

The age distribution of the Washoe County population is affected by the same forces that affect the national age distribution; but, in addition to these forces, the age distribution of Washoe County is greatly affected by the age distribution of those migrating to and from the region. The migrating population's age distribution is generally much younger than that of the general population. Washoe County has had, and is projected to continue having, substantial immigration to the region. Because of this immigration, its population distribution has historically been younger than the national distribution, and is expected to continue being younger through 2007.

Establishment-based employment increased over the 1965-1986 period from 46.6 thousand to 127.2 thousand, an annual rate of 4.9 percent. The model projects that establishment-based employment will reach 220.3 thousand by 2007, with an average annual rate of growth of 2.6 percent over the 1987-2007 period. The projected rate of employment growth is substantially less than the employment growth rate of the past 20 years, but still represents significant growth. In fact, the number of jobs projected to be created over the next 20 years, exceeds those created over the past 20 years by about 12,000 (15.5 percent).

While projecting healthy, yet generally slower growth than has occurred in the past twenty years, the SWCEM projects no significant structural changes in the Washoe County economy. For example, the percent distribution of total employment by major industry classifications in 2007 is not too different from the 1986 distribution. The services sector is expected to continue to be the dominant industrial sector, accounting for 43.5 percent of total employment, up slightly from the 40.2 percent share in 1986. The gaming/hotel/recreation sector of the services industry is expected to increase its share of total employment from 23.2 percent in 1986 to 29.0 percent by 2007. The government share of employment is expected to fall from its 12.2 percent share of total employment in 1986 to 9.3 percent by 2007. Projected changes in the share of total employment for other major sectors are generally quite small.

Table 3
The 1987 SWCEM Forecast for Selected Endogenous Variables

VARIABLE	1987	1992	1997	2002	2007	1987-2007 Growth Rate [4]
Population[1]	239.6	276.4	307.5	343.6	379.4	2.3
5-Year Growth Rate (%)[4]	3.2	2.9	2.2	2.2	2.0	
Employment, Estb. Based[1]	132.1	152.6	173.6	197.5	220.3	2.6
5-Year Growth Rate (%)	3.2	2.9	2.6	2.6	2.2	
GSRV Employment[1]	30.7	37.9	45.7	54.9	64.0	3.7
5-Year Growth Rate (%)	2.0	4.3	3.8	3.7	3.1	
BSRV Employment[1]	22.4	25.3	27.5	29.8	32.0	1.8
5-Year Growth Rate (%)	4.1	2.5	1.7	1.6	1.4	
Total SRV Employment[1]	53.1	63.2	73.2	84.7	96.0	3.0
5-Year Growth Rate (%)	2.9	3.5	3.0	3.0	2.5	
Unemployment Rate (%)	5.2	5.7	5.6	5.4	5.5	----
5-Year Growth Rate (%)	----	----	----	----	-----	
Nominal Personal Income[2]	3,848	5,455	8,199	12,326	18,318	8.1
5-Year Growth Rate (%)	6.4	7.2	8.4	8.5	8.2	
Real Personal Income[3]	3,264	3,764	4,342	5,069	5,862	3.0
5-Year Growth Rate (%)	3.3	2.9	2.9	3.1	2.9	

Notes: [1] Thousands. [2] Millions of Dollars. [3] Millions of Dollars (1982=100) [4] Growth Rates are Compound Annual Rates

Of course the SWCEM is estimated based on historical data and relationships. Substantial shifts in state and local government policies that affect the level and nature of growth in Washoe County will not be reflected in the forecast of the SWCEM. In recent years there has been an increased recognition of the need to diversify Nevada's economy. There has been considerable statewide effort to attract new industries and firms to the state. If these efforts should prove more than marginally successful, the structure of the Washoe economy and regional growth could be different from that projected by the SWCEM. Presently, the long-term outlook for diversifying the Nevada economy is uncertain. There have been several successes to date, but many other western states are also actively and aggressively seeking the same type of businesses and industry. The future success of Nevada's diversification efforts is therefore likely to hinge upon the future actions taken by businesses and government to affect how Nevada's business environment is perceived by potential entrants, relative to the business climates of other western states.

VII. Conclusions and Additional Observations

A structural econometric model such as the SWCEM, is just one of many possible methods of producing forecasts of regional economic activity. Many other modeling methods are possible, and as with econometric models, each has advantages and disadvantages. The best modeling methodology will often depend upon the nature of the forecasts that need to be made, and upon the resources available to the forecaster. For example, when the forecast horizon is short and resources (time or funds) are scarce, forecasting models such as the time-series Bayesian Vector Auto Regression (BVAR) model, or the structural Economic Base model may be preferred over econometric models.

Econometric models do entail a good amount of time and money to develop and maintain. However, when time and resources permit, many arguments can be advanced in favor of choosing econometric models over more simplistic modeling approaches.[20] In recent years BVAR models have been touted in some quarters as being a better forecasting tool -- both in terms of accuracy and cost effectiveness -- than econometric models.[21]

Cargill and Morus (1988) have developed a BVAR model for Nevada's economy, which has produced good short-term projections for many key economic variables, including gaming revenues and taxable sales. The BVAR methodology promises to be an important forecasting framework for short-term regional economic activity. However, BVAR models are time-series models, which makes them questionable tools for producing accurate long-term forecasts of economic activity. BVAR models also lack the structural richness of econometric models that permits one to explore the various behavioral relationships underlying regional economic activity, and to test specific hypotheses.[22]

The econometric modeling framework is well-suited to the task of making long-term and detailed forecasts of regional economic activity. The most serious problem of developing regional econometric models is the limited availability of detailed time-series data at the regional level -- and the smaller the region, the greater the data limitations. Despite these data limitations, it is generally possible to build reliable structural econometric models for most major matropolitan regions using the available data and some creativity.

A major benefit in building econometric models is that it forces the builder(s) to consider the underlying structural forces that drive a regional economy. Furthermore, it provides a means for empirically testing whether the hypothesized relationships are sound. Econometric models provide an efficient and consistent framework within which historical economic data can be summarized and stored, identities imposed, judgment and experience incorporated, and hypotheses formulated. Econometric model building is therefore as much an art as it is a science.

When interpreting forecasts of econometric models, it is important to keep in mind that the estimated structure is based on past relationships; significant changes in the economic or political structure after the model has been estimated obviously cannot be reflected in the model's forecasts. Also, it is important to realize that econometric models tend to focus on the demand-side of the economic coin, assuming that the regional supply of resources (i.e., the factors of production) will expand to meet any increases in demand. This may not always be a reasonable assumption; in fact, supply-side factors can have important impacts on long-term regional growth. For example, Washoe County will face serious water and air quality constraints as economic growth continues. These types of supply-side considerations need to be addressed either inside or outside the framework of the econometric model.[23]

This article has presented an econometric model for Washoe County. It has described its structure, discussed its estimation, evaluated its statistical fit and forecasting properties, and summarized the forecast. The model describes the underlying structure of the Washoe economy for its ten aggregate industries, as well as models population within a cohort survival framework. For the most part, the model has been developed along the same general lines as other regional econometric models. The analysis of the statistics and properties of the individual equations of the SWCEM, along with the *ex post* and *ex ante* simulations and accuracy evaluations, indicate this model can be a reliable long-term forecasting tool for Washoe County economic activity and population growth. However, there remains much room for improvement and refinement of the model. That is why this model will continue as an ongoing project at Sierra, and will be periodically reevaluated to ensure that it remains a reliable forecasting tool.

Notes

[1] Ghiglieri (1986) gives a detailed account of the model and its development.

[2] For example, see Glickman (1974 & 1977), and Knapp *et al.* (1978).

[3] For example, Glickman (1969 & 1971), Adams *et al.* (1975), Hall and Licari (1974), Knapp *et al.* (1978), and Rubin and Erickson (1980). Latham *et al.* (1979) did develop an econometric model for the State of Delaware, which economically represents a relatively small region.

[4] At the time the model was built, John Hester was the Division Director of the WCDCP. William Rosen was a Professor of Economics at the University of Nevada, Reno, and was working on the project through the Bureau of Business and Economic Research (BBER).

[5] Ghiglieri (1986, pp. 132-35) discusses the differences between the two models.

[6] For an example and definition, see Pindyck and Rubinfeld (1981, p. 323).

[7] Isard (1960, pp. 182-231) and Richardson (1978, pp. 82-92) discuss the Economic Base Model.

[8] The SWCEM was at first modeled and forecasted without explicitly considering the impact of regional water constraints. Before the forecasts were finalized, however, the model's population projections were reviewed with Westpac Utility's Water Division to determine if adequate water resources were available, or could be acquired, to serve the projected population levels. Since it was determined that adequate water would be available to serve the projected population, no further adjustments to the model for water limitations were required.

[9] Barone (1979) used a similar cohort survival framework for modeling White Pine County population growth. The cohort survival framework has also been applied by Sierra, in conjunction with an Economic Base model, for a number of years to model and project population and employment growth for various regions of its service territory.

[10] Migration rates were based on Geographical Mobility data, available from the U.S. Department of Commerce, Bureau of Labor and Statistics.

[11] The equation for the labor force participation rate (LFPR) is being counted as a stochastic equation, although it is not one in a pure statistical sense. Actual historical values for the Washoe County LFPR is available only for the years of 1960, 1970, and 1980. In order to use regression analysis, interim-year values for the LFPR were created using compound annual growth rates for the 1960-1970 and 1970-1980 periods. The statistical fit measures for the LFPR equation (see the Appendix) are obviously affected by the data creation process, and therefore must be interpreted with due caution.

[12] See Kmenta (1971, pp. 581-85) and Pindyck and Rubinfeld (1981, pp. 338-39).

[13] See Summers (1965) and Zellner (1984, pp. 89-92).

[14] For example, see Adams *et al.* (1975) and Chu and Wofford (1974).

[15] See Harvey (1981) for a description of the 2SFT method.

[16] Hornbeck (1975) describes the algorithm.

[17] Pindyck and Rubinfeld (1981, pp. 360-67) have an excellent discussion of statistical measures used to evaluate structural econometric models.

[18] The 1986 SWCEM's *ex post* simulation performance is compared to the *ex post* simulation performance of other regional models in Ghiglieri (1986, pp. 228-30). Glickman (1977) also summarizes the *ex post* simulation performance for several regional models.

[19] More detailed discussion and analysis of the model's ability to track turning points is in Ghiglieri (1986, pp.230-47).

[20] Glickman (1977) and Ghiglieri (1986) discuss at length the relative advantages and disadvantages of econometric models compared to other major forecasting methodologies.

[21] See Sims (1980) and Todd (1984) as examples.

[22] Cooley and LeRoy (1985) provide a critique of the BVAR methodology.

[23] Refer to note 8.

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APPENDIX

VARIABLES and EQUATIONS of the SWCEM

EXOGENOUS VARIABLES OF THE MODEL

1.	UZAHE	Average Hourly Earnings in the U.S. for Manufacturing Sector.
2.	DM65_73	Indicator variable in both the WRMNF and WRSRV Equations. Variable's value is one (1) if the year is 1965 through 1973 and zero (0) in any other year, including the forecast period.
3.	DM65_73 • UZAHE	Indicator variable in both the WRMNF and WRSRV equations. Variable's value is UZAHE if the year is 1965 through 1973 and zero (0) for any other year, including forecast period.
4.	UZWPIAG	Wholesale Price Index, Agricultural Commodities and Food -- Farm Products.
5.	UFGVTRN	U.S.Government Transfer Payments to Persons.
6.	UZMNFIP	Index of U. S. Industrial Production, Total Manufacturing (1967 = 100).
7.	UZWPIIN	U.S. Wholesale Price Index, Industrial Commodities Component (1967 = 100).
8.	UXGNP9	United States Real (1972 = 100) Gross National Product.
9.	DM76-79	Indicator variable in the WNGSRV equation. Variable's value is one (1) if the year is 1974, 1975, or 1980 through 1982 and zero (0) in any other year, including the forecast period.
10.	DM76_79 • UXGNP9	Indicator variable in the WNGSRV equation. Variable's value is one (1) if the year is 1974, 1975, or 1980 through 1982 and zero (0) in any other year, including the forecast period.
11.	DM_REC	Indicator variable in the WNGSRV equation. Variable's value is one (1) if the year is 1974, 1975, or 1980 through 1982 and zero (0) in any other year, including the forecast period.
12.	DM_REC • UXGNP9	Indicator variable in the WNGSRV equation. Variable's value is UXGNP9 if the year is 1974, 1975, or 1980 through 1982 and is zero (0) for any other year.
13.	UZCPISV	U.S. Consumer Price Index, Service component (1967 = 100).
14.	UXGNP	United States Nominal Gross National Product.
15.	UZYPDFT	U.S. Personal Consumption Deflator.
16.	UZCNST	U.S. Implicit Price Deflator for Residential Construction (1967 = 100).
17.	UMORTG	Effective Mortgage Commitment Rate on a 25-Year Fixed Rate Loan, with a 75 percent loan-to-value ratio.
18.	DM76_81 • (WYP / UZYPDFT)	Indicator variable in the WNCON equation. Variable's value is (WYP/UZYPDFT) if the year is 1976 through 1981 and is zero (0) for any other year.
19.	WNMIN	Washoe County Establishment Based Employment in Mining Industry.
20.	WNAGR	Washoe County Civilian Labor Force Employed in Agriculture Industry.
21.	WNE_ _LF	Difference between Washoe County Household Based Employment and Establishment Based Employment.
22.	UUNR	United States Unemployment Rate.
23.	ULFPART	U.S. Labor Force Participation Rate for the Civilian Labor Force 16 years of age and older.
24.	BRT_i	Five-year Birth Rate for Females in Cohort i in Washoe County.
25.	MBRS	Survival Rate for Male Newborns in Washoe County.
26.	FBRS	Survival Rate for Female Newborns in Washoe County.
27.	PMALE	Ratio of Male Births to Total Births in Washoe County.
28.	SRV_i	Five-Year Population Survival Rate in Cohort i in Washoe County.
29.	FADJ1619	Ratio of Washoe County Female Population, Age 16-19, to Female Population, Age 15-19 in 1980.
30.	MADJ1619	Ratio of Washoe County Male Population, Age 16-19 to Male Population, Age 15-19 in 1980.
31.	$MIGRT_i$	Migration Rate as a Fraction of Total Migration and Dependents in Cohort i in Washoe County.
32.	PUNFGV	Percent change in Federal Government Employment.

ENDOGENOUS VARIABLES OF THE MODEL

1.	WRMNF	Nominal Washoe County Wage Rate for Manufacturing.
2.	WRSRV	Nominal Washoe County Wage Rate for Services.
3.	WRMFSV	Average of the Nominal Washoe County Wage Rates for Manufacturing and Services Industries.
4.	WRFIR	Nominal Washoe County Wage Rate for Finance, Insurance, and Real Estate.
5.	WRCON	Nominal Washoe County Wage Rate for Construction.
6.	WRTCP	Nominal Washoe County Wage Rate for Transportation, Communication, and Public Utilities.
7.	WRWR	Nominal Washoe County Wage Rate for Wholesale and Retail Trade.
8.	WRSGV	Nominal Washoe County Wage Rate for State and Local Government.
9.	WRFGV	Nominal Washoe County Wage Rate for Federal Government.
10.	WRAGR	Nominal Washoe County Wage Rate for Agriculture, Forestry, and Fisheries.
11.	WRMIN	Nominal Washoe County Wage Rate for Mining.
12.	WYMNF	Nominal Washoe County Labor and Proprietors' Income in Manufacturing Industry.
13.	WYSRV	Washoe County labor and Proprietors' Income in Services Industry
14.	WYFIR	Nominal Washoe County Labor and Proprietors' Income in Fire, Ins., and Real Estate Industry.
15.	WYCON	Nominal Washoe County Labor and Proprietors' Income in Construction Industry.
16.	WYTCP	Nominal Washoe County Labor and Proprietors' Income in Trans., Comm., and Public Utilities Industry.
17.	WYWR	Nominal Washoe County Labor and Proprietors' Income in Wholesale and Retail Industry.
18.	WYSGV	Nominal Washoe County Labor and Proprietors' Income in State and Local Government Industry.
19.	WYFGV	Nominal Washoe County Labor and Proprietors' Income in Federal Government Industry.

ENDOGENOUS VARIABLES OF THE MODEL, continued

20.	WYAGR	Nominal Washoe County Labor and Proprietors' Income in Agriculture, Forestry, and Fisheries Industry.
21.	WYMIN	Nominal Washoe County Labor and Proprietors' Income in Mining Industry.
22.	WYTOT	Washoe County Total Labor and Proprietors' Income.
23.	WFGVTRN	Government (Local, State, and Federal) and business Transfer Payments to Persons in Washoe County.
24.	WYRA	Washoe County Income Adjustment for Residence.
25.	WYDIR	Washoe County Dividends, Interest, and Rent Income.
26.	WFGVSSI	Washoe County Personal Contributions for Social Insurance.
27.	WYP	Washoe County Total Personal Income.
28.	WYPPC	Washoe County Total Personal Income per Capita.
29.	Real Wage Rates and Income	Real wage rates for an industry are computed as the total annual nominal wage rate in an industry divided by an appropriate price index for the industry. Real income variables in the model are computed in a fashion analogous to that of real wages--nominal income (however defined) is divided by the implicit gross national product deflator.
30.	WNMNF	Washoe County Establishment Based Employment in Manufacturing Industry.
31.	WNGSRV	Washoe County Establishment Based Employment in Gaming, Hotels and Recreation Industry.
32.	WNBSRV	Washoe County Establishment Based Employment in Business Services.
33.	WNSRV	Washoe County Establishment Based Employment in Services Industry.
34.	WNFIR	Washoe County Establishment Based Employment in Finance, Insurance, and Real Estate Industry.
35.	WNCON	Washoe County Establishment Based Employment in Construction Industry.
36.	WNTCP	Washoe County Establishment Based Employment in Trans., Comm., and Public Utilities Industry.
37.	WNWR	Washoe County Establishment Based Employment in Wholesale and Retail Trade Industry.
38.	WNSGV	Washoe County Establishment Based Employment in State and Local Government Industry.
39.	WNFGV	Washoe County Establishment Based Employment in Federal Government Industry.
40.	WNNOAGR	Washoe County Total Establishment Employment.
41.	WNTOTEMP	Washoe County Establishment Based Employment PLUS Civilian Labor Force in Agriculture.
42.	WNECLF	Washoe County Employed Civilian Labor Force.
43.	WUNR	Washoe County Unemployment Rate.
44.	WNUNR	Number of Washoe County Civilian Labor Force Unemployed.
45.	WNCLF	Washoe County Unemployment Rate.
46.	WTLFPART	Labor Force Participation Rate For Civilian.Population, 16 years of age and over
47.	COHORT DEFINITIONS	The population portion of the model is based on a typical cohort survival framework, where the population is broken down into 36 mutually exclusive and exhaustive age and sex groups (cohorts).

Cohorts 1-18:

1: Male 0-4 yrs.
2: Male 5-9 yrs.
3: Male 10-14 yrs.
4: Male 15-19 yrs.
5: Male 20-24 yrs.
6: Male 25-29 yrs.
7: Male 30-34 yrs.
8: Male 35-39 yrs.
9: Male 40-44 yrs.
10: Male 45-49 yrs.
11: Male 50-54 yrs.
12: Male 55-59 yrs.
13: Male 60-64 yrs.
14: Male 65-69 yrs.
15: Male 70-74 yrs.
16: Male 75-79 yrs.
17: Male 80-84 yrs.
18: Male 85 yrs./older

Cohorts 19-36 are defined for the same age classifications, except for females.

49.	BORN_i	Number of births by Washoe County Females in Cohort i.
50.	TBIRTHS	Total Number of Washoe County Births.
51.	MBIRTHS	Total Number of Washoe County Births That Were Male and Survived.
52.	FBIRTHS	Total Number of Washoe County Births That Were Female and Survived.
53.	NPTI_i	Washoe County Population in Cohort i due to Natural Increase.
54.	NATINC	Total Washoe County Population due to Natural Increase.
55.	MLF_i	Washoe County Male Civilian Labor Force in Cohort i from the Current Population.
56.	FLF_i	Washoe County Female Civilian Labor Force in Cohort i from the Current population.
57.	WTMLF	Washoe County Total Male Civilian Labor Force from the Current Population.
58.	WTFLF	Washoe County Total Female Civilian Labor Force from the Current Population.
59.	WTTLF	Washoe County Total Civilian Labor Force from the Current Population.
60.	TOTMIGRT	Total Washoe County Migration.
61.	NPT_i	Population in Cohort i.
62.	MWNPT	Total Male Population.
63.	FWNPT	Total Female Population.
64.	WNPT	Total Population.

UNITS OF THE ENDOGENOUS AND EXOGENOUS VARIABLES

The equations of the model were estimated with the endogenous and exogenous variables stated in the following units:

- All employment and population variables are in thousands.
- All nominal and real wage rates are in dollars per employee.
- All income variables are in thousands of dollars.
- All GNP variables are in billions of dollars.
- All birth rate, mortality rate, etc. variables are in fractional form.
- All other variables (index, binary, etc.) are as defined above.

EQUATIONS OF THE MODEL

1.
$$\text{WRMNF} = \underset{(-8.918)}{-4{,}172.87} + \underset{(46.953)}{17{,}932.84} \ast \text{UZAHE} + \underset{(6.765)}{5{,}916.01 \ast \text{DM65\_73}} - \underset{(-4.752)}{6{,}187.92} \ast (\text{DM65\_73} \ast \text{UZAHE})$$

$R^2 = 0.997$ SE = 343.51 C.V. = 2.57% D.W. = 1.482 Rho = 0.028

2.
$$\text{WRSRV} = \underset{(2.748)}{646.57} + \underset{(53.811)}{10{,}334.68} \ast \text{UZAHE} + \underset{(8.872)}{3{,}901.68} \ast \text{DM65\_73} - \underset{(-6.619)}{4{,}333.86} \ast (\text{DM65\_73} \ast \text{UZAHE})$$

$R^2 = 0.997$ S.E. = 172.74 C.V. = 1.60% D.W. = 1.540 Rho = 0.084

3. $\text{WRMFSV} = (\text{WRMNF} + \text{WRSRV}) / 2$

4.
$$\text{WRFIR} = \underset{(7.616)}{7{,}680.05} + \underset{(17.368)}{0.885543} \ast \text{WRMFSV} - \underset{(-5.229)}{884.25} \ast \text{WUNR}$$

$R^2 = 0.940$ S.E. = 966.24 C.V. = 7.29% D.W. = 1.467 Rho = 0.177

5.
$$\text{WRCON} = \underset{(-32.606)}{-177{,}537.34} + \underset{(36.110)}{21{,}044.65} \ast \ln(\text{WRMFSV})$$

$R^2 = 0.986$ S.E. =905.04 C.V. = 4.78% D.W. = 1.180 Rho = 0.244

6.
$$\text{WRTCP} = \underset{(-41.071)}{-151{,}805.95} + \underset{(45.502)}{17{,}864.94} \ast \ln(\text{WRMNF})$$

$R^2 = 0.985$ S.E. = 647.36 C.V. = 4.33% D.W.* = 0.779 Rho = 0.372

7.
$$\text{WRWR} = \underset{(-46.470)}{-94{,}210.84} + \underset{(51.472)}{11{,}283.95} \ast \ln(\text{WRSRV})$$

$R^2 = 0.993$ S.E. = 277.77 C.V. = 2.75% D.W. = 1.030 Rho = 0.404

8.
$$\text{WRSGV} = \underset{(-3.970)}{-2{,}862.38} + \underset{(22.98)}{0.893} \ast \text{WRFGV}$$

$R^2 = 0.967$ S.E. = 1,092.54 C.V. = 8.58% D.W. = 1.548 Rho = 0.172

9.
$$\text{WRFGV} = \underset{(3.168)}{1{,}932.90} + \underset{(27.409)}{16{,}857.55} \ast \text{UZAHE}$$

$R^2 = 0.975$ S.E. = 1,013.84 C.V. = 5.80% D.W. = 2.015 Rho = -0.081

10.
$$\text{WRAGR} = \underset{(-5.928)}{-12{,}530.40} + \underset{(11.948)}{13{,}652.54} \ast \text{UZWPIAG}$$

$R^2 = 0.882$ S.E. = 3,048.45 C.V. = 26.8% D.W. = 1.177 Rho = 0.349

11. $\text{WRMIN} = 0.948 \ast \text{WRMNF}$ (Nonstochastic Equation: based on a historical average relationship.)

12. $\text{WYMNF} = \text{WNMNF} \ast \text{WRMNF}$
13. $\text{WYSRV} = \text{WNSRV} \ast \text{WRSRV}$
14. $\text{WYFIR} = \text{WNFIR} \ast \text{WRFIR}$
15. $\text{WYCON} = \text{WNCON} \ast \text{WRCON}$
16. $\text{WYTCP} = \text{WNTCP} \ast \text{WRTCP}$
17. $\text{WYWR} = \text{WNWR} \ast \text{WRWR}$
18. $\text{WYSGV} = \text{WNSGV} \ast \text{WRSGV}$
19. $\text{WYFGV} = \text{WNFGV} \ast \text{WRFGV}$
20. $\text{WYAGR} = \text{WNAGR} \ast \text{WRAGR}$
21. $\text{WYMIN} = \text{WNMIN} \ast \text{WRMIN}$
22. $\text{WYTOT} = \text{WYMNF} + \text{WYSRV} + \text{WYFIR} + \text{WYCON} + \text{WYTCP} + \text{WYWR} + \text{WYSGV} + \text{WYFGV} + \text{WYAGR} + \text{WYMIN}$

23.
$$\text{WFGVTRN} = \underset{(105.61)}{\text{EXP}(5.956)} + \text{UFGVTRN} \ast\ast \underset{(10.290)}{1.178}$$

$R^2 = 0.998$ S.E. = 0.041 C.V. = 0.36% D.W. = 1.252 Rho = 0.319

24.
$$\text{WYRA} = \underset{(2.529)}{19{,}508.95} - \underset{(-3.667)}{0.042} \ast \text{WYTOT} + \underset{(1.867)}{0.351} \ast \text{lag1}(\text{WYRA})$$

$R^2 = 0.946$ S.E. = 7,073.91 C.V. = 19.9% D.H.* = 2.889 Rho = 0.456

25.
$$\text{WYDIR} = \underset{(-3.627)}{-23{,}053.13} + \underset{(6.456)}{0.107} \ast \text{WYTOT} + \underset{(12.198)}{0.737} \ast \text{lag1}(\text{WYDIR})$$

$R^2 = 0.997$ S.E. = 12,027.8 C.V. = 4.38% D.H. = -1.021 Rho = -0.318

26.
$$\text{WFGVSSI} = \underset{(-0.379)}{-519.65} + \underset{(1.350)}{0.007} \ast \text{WYTOT} + \underset{(8.836)}{0.982} \ast \text{lag1}(\text{WFGVSSI})$$

$R^2 = 0.996$ S.E. = 3,694.57 C.V. = 7.44% D.H*. = -2.631 Rho = -0.381

27. $\text{WYP} = \text{WYTOT} + \text{WFGVTRN} + \text{WYRA} + \text{WYDIR} - \text{WFGVSSI}$

EQUATIONS OF THE MODEL, continued

28. WYPPC = WYP / WNPT

29. WNMNF = 72.756 + 11.643 * ln(UZMNFIP) - 7.449 * ln(WRMNF / UZWPIIN)
(5.194) (16.144) (-4.732)
R^2 = 0.954 S.E. = 0.520 C.V. = 9.92% D.W. = 1.391 Rho = 0.233

30. WNGSRV = -22.357 - 32.251 * DM_REC - 54.050 * DM76_79 + 0.0143 * UXGNP9
(-10.697) (-3.707) (-3.385) (19.192)
+ 0.0117 * (DM_REC * UXGNP9) + 0.0188 * (DM76_79 * UXGNP9)
(4.014) (3.556)
R^2 = 0.966 S.E. =1.478 C.V. = 7.53% D.W. = 1.169 Rho = 0.330

31. WNBSRV = EXP(4.691) * (WYP / UZYPDFT) ** 0.786 * (WRSRV / UZCPISV) ** -0.949
(1.680) (6.875) (4.182)
R^2 = 0.980 S.E. = 0.034 C.V. = 1.84% D.W. = 0.622 Rho = 0.555

32. WNSRV = WNGSRV + WNBSRV

33. WNFIR = 0.880 + 0.050 * WNNOAGR - 0.00003 * (WRFIR / (UXGNP / UXGNP9))
(2.772) (38.876) (-2.390)
R^2 = 0.994 S.E. = 0.113 C.V. = 2.63% D.W. = 1.241 Rho = 0.335

34. WNCON = -13.059 + 4.615 * ln(WYP / UZYPDFT) + 0.0006 * (DM76_81 * WYP / UZYPDFT)
(-1.763) (4.402) (4.994)
- 0.0002 * (WRCON / UZCNST) - 4.633 * ln(UMORTG)
(-2.952) (-4.190)
R^2 = 0.909 S.E. = 0.479 C.V. = 9.69% D.W. = 1.535 Rho = 0.161

35. WNWR = 11.593 + 0.190 * WNNOAGR - 0.00022 * (WRWR / (UXGNP / UXGNP9))
(2.549) (17.984) (-2.487)
R^2 = 0.996 S.E. = 0.366 C.V. = 2.10% D.W. = 1.530 Rho = 0.180

36. WNTCP = 4.815 + 0.002 * (WYP / UZYPDFT) - 0.00036 * (WRTCP / UZCPISV)
(4.251) (23.348) (-2.770)
R^2 = 0.970 S.E. = 0.271 C.V. = 4.51% D.W. = 1.006 Rho = 0.401

37. WNSGV = -32.581 + 8.324 * lag1(ln(WNPT)) + 3.463 * (((WYP / UZYPDFT) -
(-30.194) (38.682) (3.017)
lag1(WYP / UZYPDFT)) / lag1(WYP / UZYPDFT))
R^2 = 0.988 S.E. = 0.222 C.V. = 2.44% D.W. = 1.224 Rho = 0.295

38. WNFGV = -3.023 + 1.213 * lag1(ln(WNNOAGR)) + 3.038 * PUNFGV
(-14.707) (25.930) (4.294)
R^2 = 0.971 S.E. = 0.073 C.V. = 3.21% D.W. = 1.198 Rho = 0.371

39. WNMIN = lag1(WNMIN) + 0.050 (exogenous assumption)

40. WNAGR = 0.500 (exogenous assumption -- remains constant in forecast)

41. WNNOAGR = WNMNF + WNSRV + WNCON + WNTCP + WNFIR + WNWR +
WNFGV + WNSGV + WNMIN

42. WNTOTEMP = WNNOAGR + WNAGR

43. WNECLF = WNTOTEMP - WNE__LF

44. WUNR = 2.954 + 0.267 * UUNR - 0.215 * (WNNOAGR - lag1(WNNOAGR))
(4.707) (3.423) (-6.718)
+ 0.347 * lag1(WUNR)
(3.327)
R^2 = 0.824 S.E. = 0.570 C.V. = 9.76% D.H. = 1.090 Rho = 0.105

45. WNUNR = (WUNR / 100.00) * WNCLF

46. WNCLF = WNUNR + WNECLF

47. WTLFPART = 1.053 + 0.295 * ln(ULFPART) + 0.450 * lag1(ln(WTLFPART))
(16.72) (2.127) (3.326)
R^2 = 0.990 S.E. = 0.004 C.V. = 0.52% D.H. = -0.2130 Rho = -0.050

48. $\text{BORN}_i = \text{lag1}(\text{NPT}_i) * (\text{BRT}_i)$
where i goes from 22-27

49. $\text{TBIRTHS} = \sum_{i=22}^{27} \text{BORN}_i$

EQUATIONS OF THE MODEL, continued

50. $\mathrm{MBIRTHS} = \mathrm{TBIRTHS} \cdot \mathrm{PMALE} \cdot \mathrm{MBRS}$

51. $\mathrm{FBIRTHS} = [\mathrm{TBIRTHS} - (\mathrm{TBIRTHS} \cdot \mathrm{PMALE})] \cdot \mathrm{FBRS}$

52. $\mathrm{NPTI}_1 = \mathrm{lag1}(\mathrm{NPT}_1) \cdot \mathrm{SRV}_1 \cdot 0.80) + \mathrm{MBIRTHS}$

53. $\mathrm{NPTI}_{19} = (\mathrm{lag1}(\mathrm{NPT}_{19}) \cdot \mathrm{SRV}_{19} \cdot 0.80) + \mathrm{FBIRTHS}$

54. $\mathrm{NPTI}_i = [\mathrm{lag1}(\mathrm{NPT}_i \cdot \mathrm{SRV}_i \cdot 0.80) + (\mathrm{lag1}(\mathrm{NPT}_{i-1}) \cdot \mathrm{SRV}_{i-1} \cdot 0.20]$
where i goes from 2-18 and from 20-36

55. $\mathrm{MLF}_4 = \mathrm{NPT1}_4 \cdot \mathrm{MADJ1619} \cdot \mathrm{WTLFPART}$

56. $\mathrm{FLF}_{22} = \mathrm{NPTI}_{22} \cdot \mathrm{FADJ1619} \cdot \mathrm{WTLFPART}$

57. $\mathrm{MLF}_i = \mathrm{NPTI}_i \cdot \mathrm{WTLFPART}$
where i goes from 5-18

58. $\mathrm{FLF}_i = \mathrm{NPTI}_i \cdot \mathrm{WTLFPART}$
where i goes from 23-36

59. $\mathrm{WTMLF} = \sum_{i=4}^{18} \mathrm{MLF}_i$

60. $\mathrm{WTFLF} = \sum_{i=22}^{36} \mathrm{FLF}_i$

61. $\mathrm{WTTLF} = \mathrm{WTMLF} + \mathrm{WTFLF}$

62. $\mathrm{NPT}_i = \mathrm{NPT}_i + [\mathrm{MIGRT}_i \cdot (\mathrm{WNCLF} - \mathrm{WTTLF})]$
where i goes from 1-36

63. $\mathrm{MWNPT} = \sum_{i-1}^{18} \mathrm{NPT}_i$

64. $\mathrm{FWNPT} = \sum_{i=19}^{36} \mathrm{NPT}_i$

64. $\mathrm{WNPT} = \mathrm{MWNPT} + \mathrm{FWNPT}$

65. $\mathrm{TOTMIGRT} = \mathrm{WNCLF} - \mathrm{WTTLF}$

Notes for Interpreting Equations

1. The number in parenthesis under an estimated parameter of a stochastic equation is the t-statistic of the estimate.
2. ln = symbol for natural logarithm; lag1 = symbol for a lag of one period (year).
3. R^2 = Adjusted Coefficient of Determination.
4. S.E. = Root Mean Square Error of the equation.
5. C.V. = Coefficient of Variation.
6. D.W. = Durbin-Watson Statistic.
7. D.H. = Durbin-h Statistic (used when equation contains a lagged dependent variable).
8. Rho = First order Coefficient of Autocorrelation. This is shown for all equations, even those not requiring correction for autocorrelation.
9. DW* and DH* = Indicates that the D.W. or D.H. test statistics were such that the null hypothesis (no autocorrelation) is rejected at the 1 percent level of significance. When the null hypothesis of no autocorrelation was rejected, the original OLS equation was reestimated using the Two-Step Full Transform (2SFT) method. The DW* and DH* statistics shown are those from the OLS estmation. They are not those for the 2SFT estimation.

A Vector Autoregression Model for Population Estimates

*by Phillip Fanchon**

Introduction

The main source of revenue for most local governments in Nevada is their share of Basic City-County Relief Tax (BCCRT), cigarette and liquor taxes. The taxes are collected by the State, and distributed to the counties proportionally to their population. The official State population estimates are the basis for the distribution of tax revenues. In the 1987-88 fiscal year, the amount of tax distributed to the counties on the basis of population was approximately $90.00 per resident, and the total of such distributions exceeded $95,000,000.

The State population estimates have consistently been above the preliminary Census figures. The discrepancy exists because some administrative records data used for the preliminary Census estimates do not correspond to the year of the estimates. However, the initial difference between State and Census Bureau figures is reduced the following year when the Census Bureau publishes its revised and final estimates (based on more current data), which are always an upward revision of their preliminary estimates. By then, state funds have already been distributed.

This paper proposes a methodology for State population estimates that is based upon employment data. The method produces estimates of the change in population for the current year. Adding the computed change in population to the most recent final Census estimates yields estimates for the current year. These estimates are very close to what the final Census figures for the current year will be, and are available a year before their publication, in time for proper allocation of state revenues.

The traditional methods used by the Bureau of Census and by most federal and state agencies to estimate and forecast population trends are the Housing Unit method, the Component II method, and the Administrative Records method. A more detailed description of the Census methodology for State population estimates, with description of their accuracy, is given in the U.S. Census Bureau's *Current Population Reports*.

The Housing Unit method needs an estimate of the stock of dwellings in the county. That stock is multiplied by an occupancy rate, and is again multiplied by the average household size. (The occupancy rate and the average household size are obtained by sampling.) Finally, estimates of the population in group quarters[1] is added to that figure to yield the Housing Unit method estimate.

The Component II method uses reported resident births and deaths to measure the net natural change in the population, and relies upon school enrollment to measure net migration of the under-15 age group. For the population 15 to 64 years old, the method employs a ratio-correlation technique in which a multiple regression is applied to the changes in the three independent variables (Federal tax returns, school enrollment, and housing units). To this population is added an estimate of the population 65 or older (produced using the cumulative net change in medicare enrollees since the last Census).

The Administrative Records method uses Federal tax returns to measure net migration of the population under 65 across counties. As above, an estimate of the population 65 or older and an estimate of the population in group quarters is added to the population under 65.

Critique of the Census Methods

Census estimates are usually the average of the three methods. However, the Housing Unit method proved to be unreliable for Nevada, and the Census Bureau does not use it in its average. The Housing Unit method estimates are extremely sensitive to small fluctuations in the multiplying factors used, and the method yields estimates consistently on the high side. Utility data used as a substitute for the number of occupied dwellings has usually reduced errors. The method is ill-suited for Nevada for the following reasons: (1) not all Nevada counties issue building permits, the primary source of data for the method; (2) Nevada utility hook-ups are not good substitutes because utility accounts are not always separated between residential and commercial customers; and (3) many households in rural areas provide their own utilities.

The Component II method provides reasonable population estimates when good school data is available. Unfortunately, it can be quite difficult to match the place of residence with the place of enrollment (especially for private schools). The method also under-represents counties where much of the population does not have children in school. This is particularly true of counties with large construction and mining industries.

The Administrative Records method estimates migration with IRS data. However, tax returns indicate the place of residence in the year prior to filing. Furthermore, IRS data is not available to the Census Bureau before the second half of the year in which it is filed. The resulting cumulative lag for the IRS data is therefore close to 18 months. A similar lag also plagues medicare data. This explains why the Census estimates using

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IRS and Medicare data are first issued as preliminary figures, and are revised a year later when the relevant information becomes available. This lag can be the source of some inequities in the allocation of state resources as local governments only have the preliminary figures at the time of allocation.

The common weakness of the Census methods is that they usually cannot link migration patterns with the growth or decline of job opportunities. Because employment is often the motive for moving, a state or community with the largest employment opportunities is invariably growing faster than the initial Census estimates indicate. Nevada is a case in point as the diversification of the state's economy has induced an inflow of new firms, and the resulting increase in the number of employment opportunities has attracted out-of-state job seekers (the same process can also be observed within the State at the county level). Since nothing short of a census can provide an accurate headcount, and because the cost of conducting a yearly census is beyond the means of many counties, other accurate and more current sources of data must be substituted.

Methodology

In order to avoid some of the problems mentioned (lack of coverage, unreliable data, and lag in data), the proposed method uses employment data to estimate population. The Employment Security Department of the State of Nevada (ESD) has kept accurate monthly employment records for every county in the State for more than 20 years. The population forecasts are derived from ESD employment and unemployment data. The employment data used is the "establishment-based industrial employment" (which is a count of the number of persons employed in a given sector of the industry) in eight industrial sectors,[2] and the county unemployment rate, estimated from the number of claims for unemployment insurance.

At the time the population estimates must be completed, employment data is available through December of the previous year for small counties, and through June of the current year for the State and for Clark and Washoe counties. A forecast of both employment in each industrial sector (or aggregate of sectors) and the unemployment rate for the balance of the current year is generated using a vector autoregression method,[3] which has a proven record of accuracy. (For examples of the method, see Cargill (1988), Fildes (1985), Hakkio and Morris (1984), and Kunst and Neusser (1986).) The forecast is then used in the equation of a weighted regression of population on employment and the unemployment rate (a ratio correlation method can also be used if recent reliable data is available.) The methodology to compute population estimates for each county in Nevada can be summarized in the following four steps:

Step 1: The method relates population to two explanatory variables: the employment and unemployment rates in the county. While the unemployment rate reflects the number of county residents that are in the work force but unemployed, the employment figures include resident workers as well as workers commuting from other counties. In order to have consistent population estimates, it is then necessary to reallocate workers to their county of residence.

The most recent data available on commuting patterns is the 1980 table of the Bureau of Labor Statistics (BLS) which is reproduced in Table 1. It was assumed, for lack of better source, that commuting patterns have not changed significantly since 1980. The proportion of workers of a county who resided in the 16 other counties was derived from the BLS table, and the numbers derived were then used to estimate the number of workers that resided in a given county. The number of responses without specific place of work were allocated to the county of origin, and the number of responses "out-of-state" were assumed to be mostly military personnel based in another state or country, and were not included in the computation of the table of reallocation coefficients.

For example, if .3 percent or workers in Washoe County claimed residence in Storey county in 1980, the estimated number of Storey County residents working in Washoe County in 1986 was obtained by multiplying the employment figure for Washoe County by .3 percent. The process was repeated for all counties, and the "resident employment" figure is the total number of workers reallocated to a county. The reallocation procedure was repeated for every county for the years 1970 to 1987.

Step 2: In this step, we regressed the Census population estimates on the unemployment rate, the change in the unemployment rate, the average industrial employment and the change in the average industrial employment, to test the assumption of a strong correlation between unemployment rate, resident employment and population. The Census figures were used instead of the state population figures to avoid intractable statistical problems created by several switches in the state methodology over the period considered (1970 to 1988). The results of the stepwise regressions clearly indicated that there is a very strong correlation between employment and population, and that the inclusion of the unemployment rate resulted in a marginal improvement of the results. Inclusion of the change in the two variables yielded no significant improvement in the results and they were deleted from the list of possible explanatory variables.

Step 3: In this step, we used a vector autoregression to forecast the unemployment rate and the levels of employment for each county and for the State for the remainder of the current year. However, the use of disaggregated data for small counties often yields an erratic forecast for at least one of the industrial sectors considered. In such a case the forecast becomes extremely unreliable and must be discarded. Even when head counts are large, forecast results for counties where the data of a dominant industry has wild fluctuations can also be extremely unreliable. In such a case, there are not other options but to aggregate several sectors, with the hope that the aggregated employment figures will show smaller variations.[4]

Hence, the eight industrial sectors were used without aggregation for the State, Clark County and Washoe County estimates only, and employment data was aggregated in three sectors for the balance of the State.[5] The employment and unemployment series for each county were used to fine tune the lags and parameters of the VAR model, using known employment figures for each of the years 1982 to 1986 as the *ex ante* test figures.[6] The values of the parameters are given in Appendix 2. Those values were then used to forecast the 1988 employment and unemployment figures in the sectors or aggregates. Finally, since unemployment figures are linked to the county of residence while employment figures are linked to the county where work is located, the reallocation method described in Step 1 had to be used to reallocate workers to their county of residence.

Step 4: The county work force was computed by dividing the number of resident workers by the employment rate for the county (1 minus the unemployment rate). With the assumption that the ratio of the number of county residents in the work force to the county population has remained constant in the last year, the growth rate of the county was obtained by taking the ratio of the forecast of the county work force of the current year divided by the county work force of the previous year. The increase in population was finally obtained by multiplying the 1987 population figures by the growth rate, and the population growth was then added to the final population figures for the previous year to give the initial 1988 population estimates.

Possible adjustment to the initial estimates

Several adjustments can be made to improve the accuracy of the estimates.[7] The methodology could be improved somewhat by updating the commuting data that was generated in 1980 (for example using traffic counts), and by recognizing more explicitly the role played by the economy of adjacent counties (in particular, the exclusion of out-of-state workers form the commuting matrix could be relaxed for counties with adjacent population centers in another state).

An additional problem is caused by periodic reclassification of some industrial activities by the department of Commerce. Two counties were affected by such changes: a switch from service to trade industries in 1982 for Lander County, and a switch from government services to trade in 1980 in Mineral County.

Yet another break in data series occurred when Washoe Medical Center became private and more than 2,000 employees were reclassified from government employees to service industry employees. Fortunately, the number of employees reclassified represented a minuscule portion of employment in the different sectors, and no adjustment was made to the series. (In the case of Mineral County, the reclassification does did not affect the analysis because the two series belonged to the same aggregate.) Should a large proportion of a sector or aggregate be reclassified, one could aggregate the sectors where the switch occurred, or reallocate the workers to their original sector.[8]

Finally, the method implies that the population of group quarters and the number of persons not in the work force (mostly retirees) has grown at the same rate as the growth rate of the labor force. Hence, the results underestimate the population of counties where the number of retirees or where the population in group quarters has grown faster than the growth rate of the labor force and vice versa.

To remove some of the bias, the difference between the actual and the expected population in group quarters can be computed once the data becomes available.[9] The same approach can be used for the population not in the labor force. Unfortunately, Medicare data is the only reliable source of information on retirees, and the data is not readily available. (There is a lag of more than one year.)

Forecast results

The employment, resident employment, unemployment and population figures are given in Tables 2 to 5. (The numbers in those tables might not add to their respective totals because all figures have been truncated.) Table 2 summarizes the employment figures for the counties. The county total reflects the number of jobs held in the county, while "County Residents" is the estimated number of county residents holding a job within or outside the county.

The change in county resident employment from the previous year explains the bulk of the change in population and is given in Table 3. Counties dominated by the mining industry showed a substantial increase in employment, fueled by a regain of activity in the industry.

Table 4 is a summary of the employment activity within the counties. The difference between the employment figures of Tables 3 and 4 indicate whether a county is a net exporter of jobs.

Table 5 is the result of Step 4, which computes the net population growth. The net growth was then added to the 1987 final Census figures to yield the 1988 preliminary population estimates. Note that due to the lack of current data, no correction was made to the preliminary population estimate for the difference between actual and expected population in group quarters or for the population over 65 years old not in the work force.

Comparison of the method with final Census figures

The employment-based VAR method described above was used to compute populations estimates for the State of Nevada and each of its counties from 1981 to 1987. These estimates were then compared with the revised Census figures. There were no adjustments made for population of group quarters which might have grown at a rate substantially different from the overall growth rate of the county or state labor force.

The test results, given in Table 6, confirm similar studies done by the State of Oklahoma which produced state estimates within 2.6 percent of the Census figures.[10] The average percentage difference with the revised Census figures is mostly below the 2 percent level, except for Eureka and Lincoln Counties, which have very small populations and volatile employment, driven by the dominant mining industry. Churchill County has consistently been undercounted by the Census because the official Department of Defense headcount for the naval air station is unrealistically low (classified figures released to the Census Bureau indicate only personnel based at the station, and do not include all the personnel in transit). No other official source of data is available for military bases. On the other hand, we believe that Census figures overestimate the number of residents of Douglas County as many California

Table 1
Work Place versus Place of Residence

LIVE	0200	0400	0601	0800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3201	3400
WORK																	
0200	11,704	36	16	1,534	10	0	0	0	0	0	778	22	0	0	61	1,288	16
0400	0	4,780	0	0	0	0	0	0	0	0	33	0	0	0	0	52	0
0601	10	21	199,912	0	20	0	0	41	0	35	13	15	192	0	3	125	0
0800	569	10	0	5,817	6	0	0	0	0	4	88	0	0	0	3	238	0
1000	0	29	21	44	6,922	0	0	32	14	4	0	0	0	12	0	42	54
1200	0	0	24	0	0	42	0	0	0	0	0	0	0	0	0	13	0
1400	0	0	0	0	77	0	478	0	0	0	23	0	0	0	0	0	0
1600	9	15	10	0	8	0	0	3,727	19	0	24	0	0	110	0	67	0
1800	0	0	0	0	77	0	11	15	1,820	0	0	0	0	0	4	35	0
2000	0	0	97	0	9	0	14	0	0	1,175	0	0	0	0	0	0	21
2200	69	78	0	40	0	0	0	0	0	0	2,941	10	0	0	14	152	0
2400	12	18	0	0	0	0	0	0	0	0	27	1,998	0	0	0	10	0
2600	35	29	2,943	0	4	38	30	0	0	3	14	11	3,155	6	0	80	31
2800	0	0	0	0	0	0	0	65	0	0	0	0	0	1,196	0	0	0
3000	14	0	0	0	0	0	0	0	0	0	58	0	0	19	286	103	0
3201	1,493	233	120	230	5	0	0	12	0	6	1,052	11	0	0	302	92,176	0
3400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2,862
OUT	110	52	1,905	881	35	0	0	27	0	7	61	20	129	0	4	1,327	21
NRE	1,134	436	22,173	827	424	325	161	386	56	220	485	439	355	74	81	8,603	359

County Codes

0200 = Carson City
0400 = Churchill
0601 = Clark
0800 = Douglas
1000 = Elko
1200 = Esmeralda
1400 = Eureka

1600 = Humboldt
1800 = Lander
2000 = Lincoln
2200 = Lyon
2400 = Mineral
2400 = Nye

2800 = Pershing
3000 = Storey
3201 = Washoe
3400 = White Pine
OUT = work out of state
NRE = work place unknown

Source: "Place of Residence by Place of Work." 1980 Census, BLS Special Tabulation for Labor Market Areas, pp. 1492-1497.

Table 2
1988 Employment

	County Total	County Residents	Percent Unem-ployment
State of Nevada	528,400	528,400	5.6
Carson City	19,894	18,831	5.3
Churchill County	5,747	6,277	9.3
Clark County	303,100	307,327	5.5
Douglas County	16,856	17,072	4.7
Elko County	12,222	12,310	6.3
Esmeralda County	395	417	7.5
Eureka County	3,077	2,734	2.3
Humboldt County	4,862	4,778	6.1
Lander County	2,338	2,217	5.9
Lincoln County	1,673	1,594	5.6
Lyon County	4,457	6,850	6.2
Mineral County	2,496	2,519	5.6
Nye County	10,341	5,650	6.0
Pershing County	1,386	1,490	4.7
Storey County	632	921	5.6
Washoe County	139,000	137,321	4.9
White Pine County	2,866	3,024	9.0

Table 3
County Resident Employment

	Employment		Net	Percent
	1988	1987	Change	Change
State of Nevada	528,400	498,983	29,416	5.8
Carson City	18,831	18,165	666	3.6
Churchill County	6,277	5,561	715	12.8
Clark County	307,327	287,833	19,494	6.7
Douglas County	17,072	16,858	214	1.2
Elko County	12,310	11,280	1,030	9.1
Esmeralda County	417	397	19	4.9
Eureka County	2,734	1,233	1,500	121.6
Humboldt County	4,778	4,233	545	12.8
Lander County	2,217	1,895	322	16.9
Lincoln County	1,594	1,573	21	1.3
Lyon County	6,850	6,239	611	9.8
Mineral County	2,519	2,409	109	4.5
Nye County	5,650	5,509	141	2.5
Pershing County	1,490	1,318	172	13.0
Storey County	921	895	26	2.9
Washoe County	137,321	130,379	6,942	5.3
White Pine County	3,024	3,107	-82	-2.6

residents from the neighboring cities might maintain a Nevada legal residence for tax purposes. In this case, there is no way to estimate the extent of the overcount, short of conducting a survey. The benchmark results (Appendix 1) show that the estimates generated by the VAR method are very close to the final Census figures and yet can be generated at least one year before the final Census figures are published.

Table 4
Employment Summary

	Employment		Net	Percent	Percent Unemployment		Net
	1988	1987	Change		1988	1987	Change
State of Nevada	528,400	498,983	29,416	5.8	5.6	6.2	-0.6
Carson City	19,894	19,193	700	3.6	5.3	6.3	-1.0
Churchill County	5,747	5,056	690	13.6	9.3	7.9	1.3
Clark County	303,100	283,683	19,416	6.8	5.5	6.4	-0.9
Douglas County	16,856	16,715	141	0.8	4.7	6.5	-1.8
Elko County	12,222	11,360	861	7.5	6.3	6.4	-0.1
Esmeralda County	395	375	20	5.3	7.5	7.0	0.4
Eureka County	3,077	1,345	1,732	128.7	2.3	2.6	-0.3
Humboldt County	4,862	4,301	560	13.0	6.1	6.4	-0.3
Lander County	2,338	1,995	342	17.1	5.9	6.3	-0.4
Lincoln County	1,673	1,654	18	1.1	5.6	6.0	-0.4
Lyon County	4,457	3,968	488	12.3	6.2	7.2	-1.0
Mineral County	2,496	2,388	107	4.5	5.6	6.6	-1.0
Nye County	10,341	10,102	238	2.3	6.0	5.6	0.3
Pershing County	1,386	1,221	164	13.4	4.7	3.9	0.7
Storey County	632	631	0	0.0	5.6	6.2	-0.6
Washoe County	139,000	131,941	7,058	5.3	4.9	5.7	-0.8
White Pine County	2,866	2,957	-91	-3.0	9.0	7.9	1.0

Table 5
Population Summary

	Population 1988	Population 1987	Net Growth	Percent Change
State of Nevada	1,104,425	1,052,280	52,145	4.9
Carson City	38,578	37,750	828	2.1
Churchill County	18,040	16,860	1,180	7.0
Clark County	668,576	631,920	36,656	5.8
Douglas County	24,637	25,200	-562	-2.2
Elko County	26,330	25,000	1,330	5.3
Esmeralda County	1,439	1,380	59	4.3
Eureka County	2,542	1,950	592	30.3
Humboldt County	13,063	12,180	883	7.2
Lander County	4,980	4,580	400	8.7
Lincoln County	4,280	4,250	30	0.7
Lyon County	20,949	19,750	1,199	6.0
Mineral County	6,391	6,470	-78	-1.2
Nye County	16,402	15,520	882	5.6
Pershing County	4,867	4,360	507	11.6
Storey County	1,777	1,780	-2	-0.1
Washoe County	247,016	236,480	10,536	4.4
White Pine County	7,780	7,950	-169	-2.1

Table 6

	Mean percentage difference with Census estimates	Mean headcount difference with Census	Mean headcount difference with State
State of Nevada	1.03	7,223	-802
Carson City	0.90	271	524
Churchill County	2.10	288	7
Clark County	0.85	3,539	-1,946
Douglas County	-1.91	-312	-622
Elko County	2.05	325	-50
Esmeralda County	-0.56	-5	-28
Eureka County	6.26	70	11
Humboldt County	1.57	115	-229
Lander County	2.11	64	-28
Lincoln County	4.17	141	-71
Lyon County	-0.17	-0	-234
Mineral County	0.77	42	-6
Nye County	-2.40	-174	-298
Pershing County	0.83	21	11
Storey County	-0.66	-18	10
Washoe County	1.15	1,882	1,057
White Pine County	0.81	67	115

Conclusion

The method proposed in this paper is not a substitute for proven Census methods. It merely allows the State to have a better estimate of the final Census figures over a year before the publication of the final figures, and in time for a fair allocation of state resources. The methodology alleviates the major problems that arise when computing population estimates using the traditional Census methods. Despite the few setbacks mentioned, the method is believed to be superior to the more conventional regression techniques. Its strong points are the following:

(1) The method is flexible, as every year one can adjust the parameters of the prior distributions used in the VAR forecast to fit the most recent data. The flexibility of the VAR technique makes it particularly suited for short-term forecasts for counties with disparate industry structures. A separate economic model can be created for each county, where each estimate is influenced by the mix of industries, along with their relative strength within the county. Because it does not impose a rigid structural form (all the variables are endogenous), the forecast takes into consideration most of the past and present cross effects from one industry to another within a county.[11]

(2) The same method can be applied to all the counties, regardless of size.

(3) The method is more robust than Census methods because it is based upon an average of monthly figures for a period of one year instead of the once-a-year figures used in the usual Census methods. The averaging produces better estimates in the sense that some counties might have seasonal population movements which will not be captured by a once-a-year snapshot. The Census bias is potentially severe in counties where employment (and claimed residency) in some dominating industries is highly seasonable or erratic (e.g., tourism and mining industries).[12]

(4) The method uses the most recent data, which better reflects current population, and completely avoids the lags of the Census data and the concurrent need for yearly revisions.

(5) Population estimates can be produced with minimal cost at the county level: Employment data is readily available on diskettes, and counties can use existing software to generate estimates on personal computers, adjusting the VAR parameters to best fit their own employment and unemployment series.

On the negative side, this method is limited by the capabilities of the machine on which the software is run (most counties do not have a large computer, and the memory of an average Personal Computer limits the model to a maximum of eight variables lagged five periods). The assumption of constant ratio of labor to population is reasonable for the short run (one to three years), but it might not be so for the long run: The increasing participation rate of women in the labor force is only partially captured in the regression of Step 1 where the employment coefficient is derived using observations for years when their participation rate was lower. Hence the employment coefficient has a slight upward bias, the amount of bias being determined by the kind of industries experiencing an increased participation rate, and by the relative size of the sector within the industries of the county.[13] This bias can be removed by refitting the model regularly, as the new coefficients will reflect the changes.

APPENDIX 1

Vector Autoregressions

The traditional approach in econometric modeling is to identify a rigid set of relationships between variables (structural equations), and identify the coefficients attached to those variables (estimation). This "cross section" approach is unsatisfactory for systems that evolve with time. In 1970, Box and Jenkins proposed a new class of time series techniques (the autoregressive integrated moving average method) that was quickly adopted because of its much improved forecasting performance. The use of time series has since gained wide acceptance as an alternative to traditional econometric models. However, the method focused on univariate problems, and research on multivariate extensions has been very slow due to the highly complex interaction between the variables, their past values and the lagged values of the error term.

Using simplifying assumptions, Sims, Doan and Litterman developed Vector autoregression (VAR) which is the simplest form of multivariate time series. Estimating a VAR is essentially a procedure to investigate the relationship between a set of variables (a vector) and their past values (autoregression). VARs are atheoretical models in the sense that they do not impose a rigid set of relationships between a limited number of variables, and virtually let the data speak for themselves. Hence, VAR models can be estimated without the parameters constraints necessary to identify and estimate structural econometric models. The system of equations of a VAR model is the reduced form of some unknown system of structural equations, and can be written:

$$Y_t = X_t + B_0 + B_1'Y_{t-1} + B_2'Y_{t-2} + \dots + B_m'Y_{t-m} + e,$$

where Y_t, X_t, B_i and e are (nx1) column vectors representing exogenous variables (Y), endogenous variables (X), coefficients (B), an error term (e), and ' denotes the transpose.

Choice of the lags:

The choice of lag length is normally determined through an asymptotic chi square test: The maximum possible number of lags (N) is established either from memory restrictions of the computer used, or from theoretical considerations. Then the covariance matrix of the residuals (Σ n) is calculated for each possible lag length (n). The X^2 statistic,

$$T\,[\log(\det(\Sigma n_1) - \log(\det(\Sigma n_2)] \qquad 0 < n_1 < n_2 \leq N,$$

is used to test the null hypothesis that the first n_1 lags are restrictions on a lag of n_2. The X^2 statistic has $PQ(n_2-n_1)$ degrees of freedom, where T is the number of observations, P is the number of equations, and Q is the number of variables. The p-value of that statistic is computed for all possible values of n_1 and n_2, a high p-value indicating no restrictions. The smallest lag for which no restrictions apply is the most appropriate. Doan (1988) presents a detailed explanation of the selection process.

Note that consecutive lags are not necessarily the best formulation of the VAR model. In the case of forecasts from data with high seasonal trend, a more relevant lag is the length of the cycle. Memory limitations of the computer, and data availability often restricts the choice of lags and limits the number of variables.

The Bayesian approach:

When an important variable is omitted from an economic model, valuable information is not used to explain the behavior of the endogenous variables. However, when too many variables are included in a model, the accuracy of the parameters estimated is unnecessarily decreased.

The choice of which variables to include in an economic model boils down to a choice of the balance between oversimplification and overparametrization, and a choice of the functional form relating the variables. VAR models, as initially formulated, include a very large number of parameters. The resulting low degrees of freedom associated with the parameters estimates produced few significant parameters estimates, and forecast results were poor.

In 1981, Litterman proposed a Bayesian version of the VAR procedure (BVAR) which dramatically improved the forecast accuracy of the method. The Bayesian formulation allows the introduction of a large number of variables, and the forecast performance is improved by a judicious choice of priors. The usual index of the fitness of the prior is the out of sample forecast performance of the model. However, specification of the parameters of all the priors of a VAR is a formidable task because of their sheer number.

To simplify the chore, Litterman (1986) recommends the "Minnesota" prior, where the mean of the prior of the first lag is equal to 1, and is equal to zero for longer lags. The standard deviation of the priors is expressed as:

$$S(i,j,l) = \{\alpha\, g(l) f(i,j)\}\, s_j/s_i \quad ; \quad f(i,i) = g(l) = 1,$$

where s_i is the standard error of a univariate autoregression on equation i. With such a specification, a prior that is loose on its own lags and tight on the other variables (e.g., f(i,j) = .2) will allow the other variables to enter the equation only if the data strongly suggests it. With the "decay" parameter g(l), one can give a decreasing importance to longer lags by reducing the variance of the prior distribution of the parameters.

An alternative prior structure (the "circle-star" prior) allows a loose form of economic structure by grouping variables in two categories; the variables with the highest likely explanatory power ("star" variables), and other minor variables ("circle" variables). In such a prior, the two groups of variables are given different relative weights, and "star" variables also have their own relative weight within the group. Selection of the best prior is still an art and depends mainly upon the intuition and skills of the forecaster.

APPENDIX 2

The standard deviation of the priors is expressed as:

$$S(i,j,l) = \{\alpha\, g(l) f(i,j)\}\, s_j/s_i \quad ; \quad f(i,i) = g(l) = 1,$$

where s_i is the standard error of a univariate autoregression on equation i. In the analysis,

a. the overall tightness parameter α is equal to .3;

b. the weight attached to each lag g(l), is equal to l^{-d} where d is that lag; and

c. the tightness on variable j in equation i relative to variable i, f(i,j), is equal to 1 if j=i, and equal to .5 otherwise (this somewhat high cross variance parameter reflects the fact that fluctuations in employment in one industry is very likely to cause fluctuations in the other industries).

The lags used are 1, 2, 6, 9, 12 and 24 months. Since the values of the long the seasonal lags are as important as the values of the shorter lags, no decay factor was used to weight the lags (the DECAY=0 option was used in the RATS program).

Notes

[1] Prisons, retirement homes, college dormitories, military barracks, mental institutions,....

[2] The eight industrial sectors are: mining, construction, manufacturing, transportation, trade, finance, insurance & real estate, service industries, and government sector.

[3] In the vector Autoregression (VAR), past values of employment and unemployment are used to estimate their current values. See Appendix 1 for a more precise definition of vector autoregression.

[4] A common occurrence of this problem often arises in the mining and construction industries. For example, during the years 1981 and 1983, an attempt by an investor to corner the silver market and the concurrent recession sent the price of precious metals to record high levels, spurring interest in silver and gold mining. During that period, small counties with silver or gold mines saw their mining labor force temporarily increased, often by 50 to 100 percent within a year. The subsequent fall in prices induced an exodus of the miners, and populations returned to their previous levels.

[5] The three aggregates used for the other counties were: Aggregate 1 which contains mining and construction sectors; Aggregate 2 which contains manufacturing, transportation and public utilities, and trade sectors; and Aggregate 3 which contains finance and real estate, services, and government sectors.

[6] The criteria for selection of the best model is minimization of the residual sum of squares of the forecast for the benchmark period. In order to avoid having a different model for every county, only two possible models were considered: one with eight industrial sectors, and one with three aggregates.

[7] In order to allow a better evaluation of forecasting accuracy of the method itself, without special adjustments, none of the following adjustments were made.

[8] Or use the original model with an extra dummy variable in every equation.

[9] For example, if the county experiences a 10 percent growth rate, and the population in group quarters was 1,000 the previous year, the expected population in group quarters for the year of the forecast is 1,100. If the actual population for the year of the forecast is 1,300, the final estimates must be increased by 200.

[10] Personal communication from the staff of the Population Research Unit of the State, also forwarded to the Bureau of Census for validation as an alternate method.

[11] For example a freeway bypass of a city will decrease employment in the trade sector in the short run, which in turn will affect the other sectors with an uncertain time lag. The procedure captures these effects even though the forecaster did not estimate the length of the response delay from one industry to another caused by an exogenous shock.

[12] The bias can be quite large for counties dominated by the mining industries, as seasonal workers can claim residency during their stay.

[13] An alternative approach to using regression coefficients is to use the most recent reliable population estimate, compute the ratio of employment to population for that year, and assume that the ratio is the same for the current year. Such an alternative is viable in the few years following a census, but might be very unreliable in later years when the size and sign of the possible error in the population estimate is unknown.

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An Estimation of Nevada Industrial Employment: An Application of Bayesian Vector Autoregression

*by Kimberly S. Harris**

Introduction

Nevada's economy experienced rapid growth during the 1980s. Following slight declines in industrial employment during the recessions of the early 1980s, the State's employment growth recovered rapidly during the mid-1980s. Since 1988, however, Nevada's rate of industrial employment growth has been among the highest in the nation. As a result of the current expansion of the Las Vegas economy and the State's economic diversification efforts, rapid employment growth is expected to continue into the 1990s.

With the State's rapid employment growth, the forecasting of industrial employment has become increasingly challenging. Each year, the Nevada Employment Security Department (NESD) develops five-year forecasts of annual industrial employment. These forecasts are used in Departmental planning and are also provided to other State government agencies for planning purposes.

Traditional methods of forecasting used by NESD failed to predict the large employment increases experienced in recent years, however. In 1987, NESD officials investigated alternative forecasting methods which might provide more accurate results. The purpose of this paper is to describe traditional forecasting techniques, as well as to explain the relatively new technique of vector autoregression (VAR). NESD's use of VAR methodology is described in forecasting Nevada employment by industry.

Forecasting Techniques

All statistical forecasting techniques combine information from historical data with information supplied by the modeler. The information supplied by builders of models is known as their 'prior beliefs' about the best way to forecast. Different forecasting methods vary in how they represent prior beliefs and how much weight they place on them.

Two traditional forecasting methods are the structural model and the time series model. Structural models rely on economic theory to identify causal relationships between variables in the economy. The model builder supplies the independent (or exogenous) variables believed to explain the variation in the dependent (or endogenous) variable being predicted. Examples of structural models include econometric models, input-output models, and simultaneous equations models (Johnston, 1972).

Time series techniques rely solely on the past behavior of the variable of interest to predict future values. With time series models, the modeler believes that the historical recurring patterns exhibited by the variable being predicted will be repeated in the future. These recurring patterns, which may be composed of both the past values of the variable itself and random disturbances, such as contemporaneous past errors, become the basis of the forecast.

A variation of the time series approach to forecasting has emerged in recent years. The vector autoregression (VAR) model relates future values of a group, or vector, of variables to past values of that vector, as shown in Figure 1:

$$(1)\ Y(t) = D(t) + B * Y(t-1) + \ldots + B * Y(t-m) + e(t) \quad (1)$$

where Y is an (nx1) matrix of variables, D is an (nxn) matrix of coefficients, e is an (nx1) matrix of residuals, and m is the lag length. Deterministic components may include a constant term, seasonal dummy variables, or general dummies to represent discrete changes during a certain time period.

In a VAR model, all of the variables interact linearly with their own and with each other's current and past values. Historical data is used to determine the quantitative impact that each variable has on its own future values and the values of other variables. In a VAR model with M lags, each predicted variable is regressed against its own values in each of the M preceding periods, against the values of the other variables being forecast in each of the M previous periods, and against a constant term (Todd, 1984).

Two types of VAR models may be developed. The unconstrained vector autoregression (UVAR) is not restricted by the modeler's prior beliefs on coefficients or lag patterns. Modelers rarely have enough data to construct a UVAR, however. The Bayesian VAR (BVAR) enables the modeler to impose three types of prior beliefs upon the model (Litterman, 1979). These prior beliefs include 1) a random walk prior, 2) an interaction prior, and 3) a distributed lag prior.

The essential difference between a structural model and a BVAR model is illustrated by the random walk model. Structural models only restrict point estimates, with no variance values set to reflect the modeler's confidence in the point estimates. Variables that are excluded from a traditional model are assumed to have coefficients of zero with complete certainty. BVAR models, however, restrict both point and variance values for each coefficient. A mean value of 1.0 is imposed on the first lag of the dependent variable in each equation, while coefficients on all other variables are set to zero. The modeler reflects his belief in the suitability of the random walk model by how tight or small the variances are set. A tight prior enables little or no variance from their point values, while a loose prior enables greater variance.

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The second prior which may be set in a BVAR model is the interaction prior, which indicates the degree of influence other variables in the equation are allowed to exert on the dependent variable. The distributed lag prior, the third type of prior, indicates the weight that distant lags are allowed to have, as well as the type of distributed lag pattern desired.

Previous Studies of Nevada Employment

Previous efforts to predict Nevada employment have relied upon a variety of forecasting techniques. Prior to 1987, NESD used econometric models to predict industrial employment (unpublished NESD records). A large structural model to forecast Nevada's economy, including employment, was developed by Chu (1972). Cargill *et al.* (1979) developed structural models of the Washoe County, Nevada economy to predict employment, payrolls, and wage rates.

More recent attempts to forecast Nevada employment have utilized vector autoregression methods. The BVAR technique is used by Cargill and Morus (1988) to forecast employment, gaming revenues, and taxable sales. Harris and Harris (1988) develop UVAR models to consider lag structures between basic and non-basic employment sectors in non-metropolitan counties of Nevada.

Methodology

Vector autoregression models are developed by NESD to forecast industrial employment, using the commercial software package RATS. Five-year forecasts of total annual industrial employment are developed for Nevada, Las Vegas, and Reno. The most current NESD projections are forecasted over the period 1989 through 1994.

Employment forecasts are also developed at the one-digit Standard Industrial Classification (SIC) level for the following industries: Mining, Construction, Manufacturing, Transportation/ Communication/Public Utilities (TCPU), Total Trade, Finance/ Insurance/Real Estate (FIRE), Service, and Government. In addition, two-digit SIC level employment is projected for the Wholesale Trade, Retail Trade, and Hotels/Gaming/ Recreation (HGR) sectors.

Model Variables and Assumptions

NESD BVAR models consist of a vector of national, regional, and state variables. National variables include the rate of inflation, measured by the GNP deflator (GNP), and the three-month U.S. Treasury bill rate (TBILL). The regional variable utilized is California industrial employment (CALEMP). State variables include Nevada (NVEMP), Las Vegas (LVEMP), and Reno industrial employment (RNEMP). All variables (except TBILL) are seasonally adjusted using the Census Bureau X-11 procedure. All models include a deterministic constant term.

The relationship between the national, regional, and Nevada variables may be analyzed by estimating a UVAR model and developing a forecast beyond the estimation interval. The observed variance in the forecast error of variables is then decomposed into the parts due to shock in each variable in the vector. Table 1 contains decomposition of variance results of a UVAR MODEL estimated from first quarter 1965 through third quarter 1987, with forecasts generated from fourth quarter 1987 through fourth quarter 1989. The national variables play a more important role in explaining the variance in the

Table 1. Decomposition of Variance in Nevada UVAR Model

		Percentage of Variance of Error due to Disturbance to:			
Forecasted Variable	Quarters Ahead	GNP	TBILLS	CALEMP	NVEMP
GNP	1	100.0	0.0	0.0	0.0
	4	89.8	3.5	1.6	5.1
	8	79.1	7.4	7.2	6.3
TBILL	1	0.0	100.0	0.0	0.0
	4	12.0	68.7	4.4	14.9
	8	11.0	43.6	15.1	30.3
CALEMP	1	0.0	0.0	100.0	0.0
	4	0.4	28.7	63.6	7.3
	8	0.8	69.0	24.8	5.4
NVEMP	1	0.0	0.0	0.0	100.0
	4	1.9	18.9	2.1	77.1
	8	1.4	56.6	1.0	41.0

Nevada and California variables than the state and regional variables play in explaining variance in the national variables. Also, although Nevada's economy is influenced by California, the Nevada variable is less sensitive to national variables than is the California variable.

Based on these relationships, the national and regional variables are treated as exogenous variables in NESD VAR models. Although the VAR methodology treats all variables in the equation as endogenous, NESD models use independently predicted values of these variables to increase the accuracy of forecasts. Exogenous variables include the GNP deflator, the six-month U.S. Treasury bill rate, and California industrial employment. Forecasts of the GNP deflator and Treasury bill rates are obtained from the Congressional Budget Office (1989), and California industrial employment projections are obtained from the California Commission on State Finance (1989).

NESD officials expect that the Nevada economy will grow more rapidly between 1989 and 1991 than between 1992 and 1994. The rapid growth the State, and particularly Las Vegas, are currently experiencing is expected to taper off within the next five years. Because of the different assumptions toward growth, all employment forecasts between 1989 and 1994 were developed in two separate models. Employment was predicted for the time period 1989 through 1991 assuming a higher growth rate than for the period 1992 through 1994.

Model Development and Priors

BVAR forecasting models are typically developed during an estimation stage, in which predicted model outcomes are compared against actual in-period outcomes. Models are evaluated on such criteria as absolute mean errors, root mean square errors (RMSE), and Theil U statistics. The Theil statistic compares the RMSE of the forecast to the RMSE of a 'naive' forecasting model. A value less than one indicates that a VAR model outperforms a naive model. Due to time constraints in developing forecasts during 1989, however, the estimation stage was not performed. Rather, models developed during 1988 were used to forecast 1989 through 1994 employment. Theil U statistics from the previous year's models were generally less than one.

A separate BVAR model is developed for each area. Some industries are predicted separately as well, but industries with expected similar future growth rates are combined and forecasted together. BVAR models are estimated using quarterly data from the first quarter of 1965 through the first quarter of 1989. Quarterly forecasts are developed over the period second quarter 1989 through fourth quarter 1994. These quarterly projections are then averaged to obtain annual forecasts.

Employment forecasts may reflect the impact of a planned new firm if an industry's employment will be significantly impacted by the opening of that firm. Only firms which are already under construction and are thought with certainty to open at a specific point in time are considered. Examples include large hotel/casinos and the new state prison located in White Pine County.

Priors for the Nevada total employment forecast period 1989:2 through 1991:4 included an overall random walk tightness prior of 0.10, a harmonic lag decay pattern on the distributed lags with a decay parameter of 1.0, and a cross weight prior of 0.3. The only change in priors for the forecast period 1992:1 through 1994:4 included a tightness prior of 0.05. Priors for other areas and industries are similar. In all models, lag length was six quarters.

Exogenous and endogenous variables for Nevada BVAR models are shown in Table 2. The variables included in the Las Vegas and Reno total employment models are also shown, while industry models are similar to the Nevada models. Note that NVEMP is used as an exogenous variable in forecasting Las Vegas and Reno total employment only. Models to predict metropolitan area industry employment include the variable total Las Vegas or Reno total employment. For example, the forecasting model for Las Vegas Construction employment will include the exogenous variables GNP, TBILL, CALEMP, and LVEMP.

When the annual Nevada total industrial employment forecasts are completed for the five-year period, they are re-

Table 2. Endogenous and Exogenous Variables for NV VAR Models

Endogenous Variable	Exogenous Variables
NV Total Employment (NVEMP)	GNP, TBILL, CALEMP
NV Total Trade (NVTRAD)	GNP, TBILL, CALEMP, NVEMP
NV Wholesale and Retail Trade	GNP, TBILL, CALEMP, NVEMP, NVTRAD
NV Service	GNP, TBILL, CALEMP, NVEMP
NV HGR	GNP, TBILL, CALEMP, NVEMP, NVSVC
NV Construction, FIRE, and Government	GNP, TBILL, CALEMP, NVEMP
NV Manufacturing and TCFU	GNP, TBILL, CALEMP, NVEMP
Las Vegas Total Employment (LVEMP)	GNP, TBILL, CALEMP, NVEMP
Las Vegas Total Trade	GNP, TBILL, CALEMP, LVEMP
Reno, Total Employment (RNEMP)	GNP, TBILL, CALEMP, NVEMP
Reno Total Trade	GNP, TBILL, CALEMP, RNEMP

viewed by the Statewide labor economist. Because all forecasts must be explained and used by area economists, they provide input into the final forecasts. If the Statewide economist suggests no changes, then employment for each of the 11 Nevada industrial sectors is forecasted, using the total Nevada employment forecast as an exogenous variable.

After all Nevada industrial sectors are predicted, the sectors are summed to the Statewide total. This summed total employment value then replaces the independently predicted total employment figure, which was only used as a 'control total' in developing industrial sector employment.

Las Vegas and Reno total employment and industry employment forecasts are then developed, using models similar to those developed to predict Nevada forecasts. Again, the sum of the Las Vegas and Reno industries becomes the total employment for that area, replacing the independently predicted 'control total'. After Las Vegas and Reno employment forecasts are developed, area economists may request changes in the predicted values.

Evaluation of Forecasts

Since the time that the 1989-1994 forecasts were prepared (summer 1989), 1989 annual average employment figures have become available. Table 3 provides the percentage forecast errors for 1989 based on actual 1989 industrial employment for Nevada, Las Vegas, and Reno.

Results indicate that BVAR models provided relatively accurate 1989 annual average industry employment for all areas in Nevada. Statewide and Las Vegas forecasts are consistently underestimated, while Reno forecasts are overestimated. The total employment forecast errors are small, however, as are errors for the two largest industrial sectors, trade and services. Forecasts at the two-digit SIC level are also relatively accurate.

Table 3. Forecast Errors[1] of 1989 Annual Average Area Industrial Employment

		AREA	
INDUSTRY	Nevada	Las Vegas	Reno
Mining	2.9%	33.0%	6.7%
Construction	7.2	12.7	-8.1
Manufacturing	-4.3	-4.0	-7.1
TCPU	1.0	5.6	-4.3
Trade	1.5	3.6	-2.1
Wholesale Trade	2.6	2.4	1.2
Retail Trade	1.2	3.8	-3.3
FIRE	-2.7	-0.6	-7.6
Services	0.8	0.7	1.9
HGR	-0.9	-1.3	-1.6
Government	-0.3	0.0	-1.2
Total Employment	1.0	2.4	-1.3

[1] (Actual - Forecast)/Actual

Statewide, the largest percentage error occurred in construction, which is the most rapidly-expanding industry. In the metropolitan areas, some large forecast errors are due to small employment bases. For example, the forecast errors for Las Vegas and Reno mining each represent a difference of only 100 between actual and forecasted.

Concluding Comments

The alternative forecasting technique of vector autoregression has been utilized by NESD since 1987 to forecast annual industrial employment in Nevada. This methodology was adopted when structural models failed to predict the high rates of growth experienced by Nevada industries during the late 1980s.

Five-year forecasts are developed for Nevada, Las Vegas, and Reno total industrial employment and 11 industrial sectors. Using BVAR models, more accurate employment forecasts have been developed. Forecast errors for 1989 total industrial employment for Nevada, Las Vegas, and Reno do not exceed 3 percent, although models consistently underestimate Nevada and Las Vegas employment and overestimate Reno employment.

Despite the relatively accurate forecasting models developed by NESD, further research should examine the relationships between variables included in models. Granger causality tests or similar measures should be utilized to learn more about the appropriate variables for inclusion.

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STATISTICALLY- BASED PROFILES OF METROPOLITAN AREAS IN NEVADA

The Las Vegas Perspective

The Las Vegas Perspective began ten years ago to showcase the Las Vegas Metropolitan Area as a place to live and to do business. The 96 page 1990 Edition will be available in April. This colorful document is accompanied by a video tape that runs about nine minutes.

A concerted effort was made to maintain continuity of the data series, although a number of changes have been made in its contents as this book has evolved during the past 10 years. Recent editions have contained seven sections -- Demographics, Community, Construction, Retail Market - Banking, Tourism, Business & Industry, and On the Horizon. An annual mail survey currently reaches 15,000 households and is the source of a large part of the data contained in the Las Vegas Perspective.

The Reno Outlook

The first edition of the Reno Outlook was released in September of 1989. Reno Outlook contains 64 pages of photographs, data and commentary. A nine minute video tape was also produced to provide an overview of the Reno/Sparks area.

The Reno Outlook presents the area as a unique place to live. The statistical information in this book came from a variety of secondary sources and a mail survey that was sent to 10 percent of the households in the Reno Metropolitan Statistical Area. This survey focused on leisure activities, shopping patterns and population characteristics. The Reno Outlook supplements the survey data with a broad range of information obtained from secondary sources. The Reno Outlook consists of six sections -- Community, Demographics, Gaming and Tourism, Financial and Retail, Economy, and Reno Outlook.

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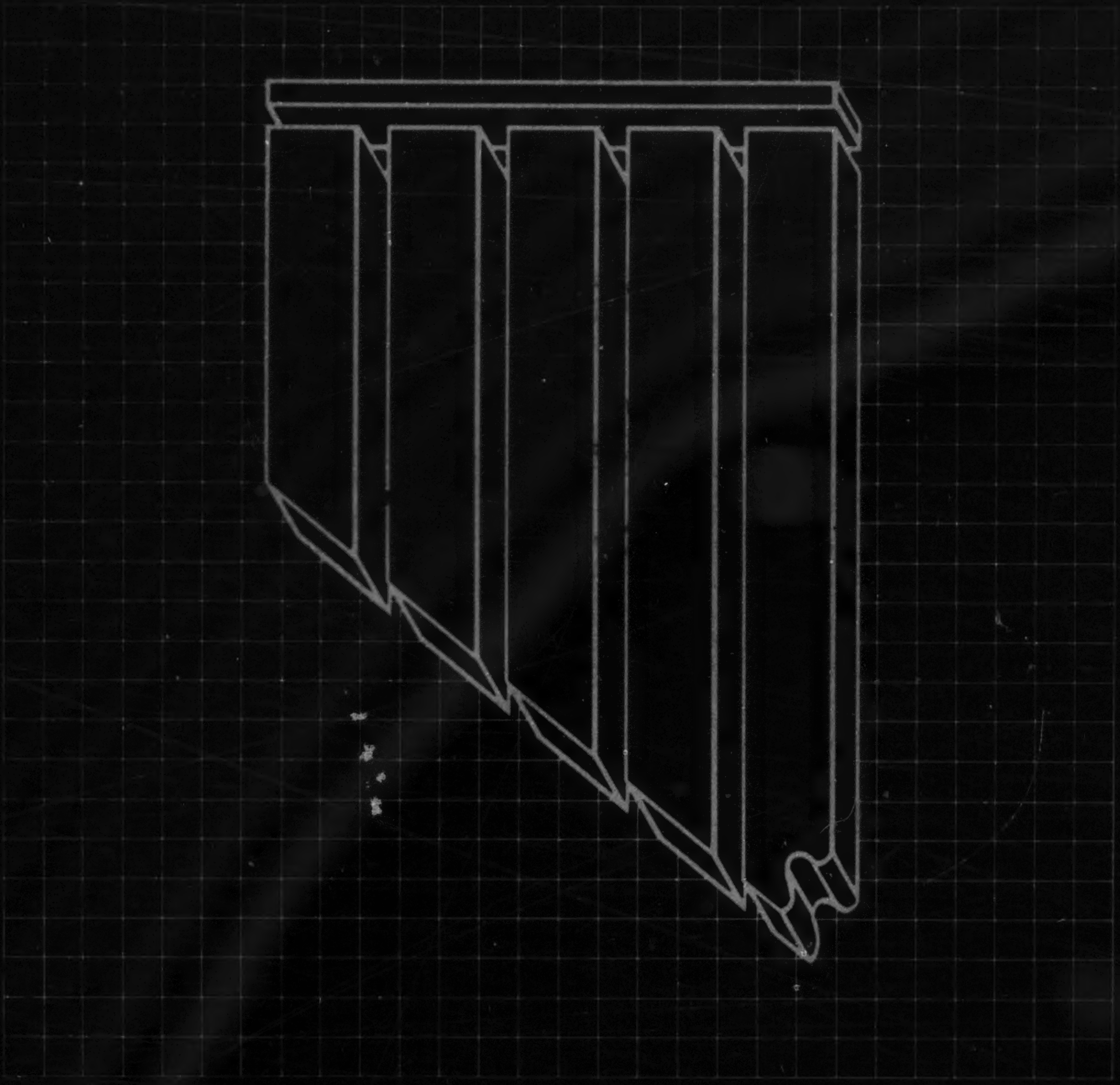

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PREFACE

Data Sources

The data sources are numerous. The majority of Nevada data was obtained in cooperation with the following: Airport Authority of Washoe County; Carson City Department of Public Works; Churchill County; City of Elko; City of Las Vegas, Nevada Building and Safety; City of North Las Vegas; City of Reno, Building and Safety Department; City of Sparks; Clark County Department of Aviation; Las Vegas Convention/Visitors Authority; Nevada Power Company; Reno-Sparks Convention/Visitors Authority; State of Nevada Department of Taxation; State of Nevada Department of Transportation; State of Nevada Employment Security Department; State of Nevada Gaming Control Board; State of Nevada Health Division; State of Nevada Office of the Demographer; U.S. Bureau of the Census; U.S. Department of Commerce; U. S. Bureau of Labor Statistics; Washoe County Building and Safety Division; and White Pine County Regional Planning Commission.

National data were obtained from computer files provided by Citicorp Database Services and the western regional data were provided by the Research Department of the Federal Reserve Bank of San Francisco.

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Staff members of the Bureau of Business and Economic Research also deserve special mention for their role in bringing the Economic Indicators issue to reality. Their names are listed on the inside front cover. Dottie Clevenger and Martin Kyte, however, deserve special thanks for their tremendous efforts in this task.

Considerations

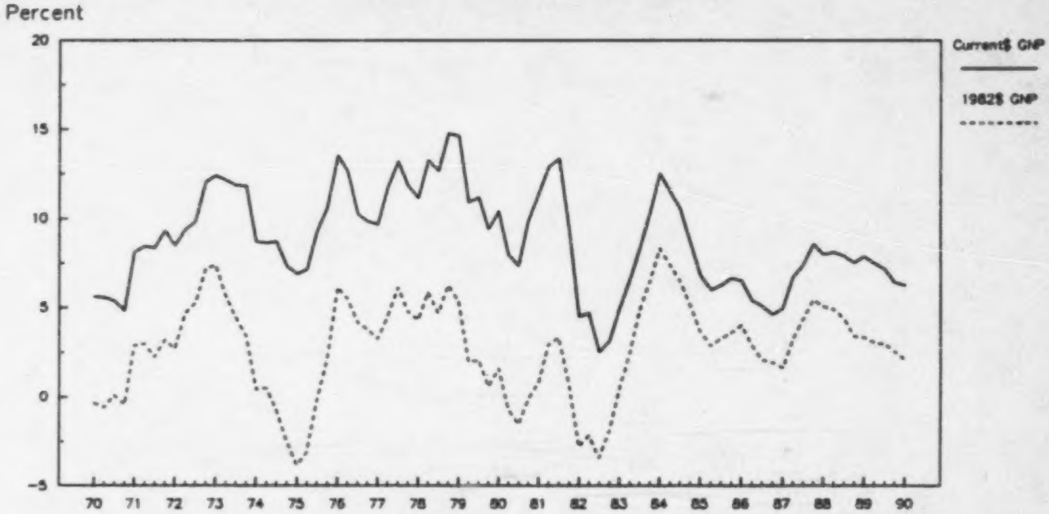
The majority of data in the Economic Indicators issue is self explanatory; however, there are three considerations to bear in mind. First, monthly and quarterly percentage changes are calculated using the corresponding month or quarter in the previous year unless noted otherwise. Second, data that was either obtained in a seasonally adjusted form or was seasonally adjusted by the Bureau of Business and Economic Research is labeled SA. All other data should be regarded as unadjusted for seasonal variation. Third, annual values are averages of the monthly or quarterly values unless otherwise noted.

NATIONAL

GROSS NATIONAL PRODUCT (GNP)

Current and Constant (1982) Dollars, SA

Percent Change from Year-Ago-Quarter



GROSS NATIONAL PRODUCT AND COMPONENTS

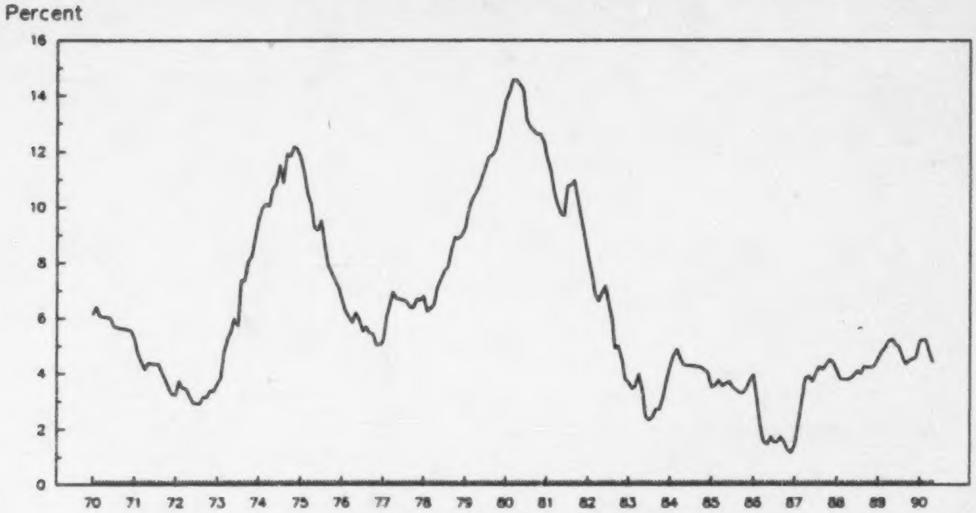
(Billions of Dollars, SA)

Year / Quarter	Gross National Product	Personal Consumption Expenditures	Gross Private Domestic Investment	Government Purchases of Goods and Services	Imports of Goods and Services	Exports of Goods and Services	Gross National Product (1982 $)
1970	1,015.5	640.0	148.8	218.2	60.5	68.9	2,416.2
1971	1,102.7	691.5	172.5	232.4	66.1	72.4	2,484.8
1972	1,212.8	757.6	202.0	250.0	78.2	81.4	2,608.5
1973	1,359.3	837.2	238.8	266.5	97.3	114.1	2,744.0
1974	1,472.8	916.5	240.9	299.1	135.3	151.5	2,729.3
1975	1,598.4	1,012.8	219.6	335.1	130.3	161.3	2,695.0
1976	1,782.8	1,129.4	277.7	356.9	158.9	177.8	2,826.7
1977	1,990.5	1,257.2	344.1	387.3	189.7	191.6	2,958.7
1978	2,249.7	1,403.5	416.8	425.2	223.4	227.5	3,115.2
1979	2,508.2	1,566.7	454.8	467.8	272.5	291.2	3,192.3
1980	2,732.0	1,732.6	436.9	530.3	318.9	351.0	3,187.2
1981	3,052.6	1,915.1	515.5	588.1	348.9	382.8	3,248.7
1982	3,166.0	2,050.7	447.3	641.7	335.6	361.9	3,166.0
1983	3,405.7	2,234.6	502.3	675.0	358.6	352.5	3,279.1
1984	3,772.2	2,430.5	664.8	735.8	442.5	383.5	3,501.4
1985	4,014.9	2,629.0	643.1	820.8	448.8	370.9	3,618.7
1986	4,231.6	2,797.5	659.4	872.2	493.8	396.5	3,717.9
1987	4,524.3	3,010.8	699.9	926.1	561.2	448.6	3,853.7
1988	4,880.6	3,235.1	750.3	968.9	621.3	547.6	4,024.4
1989	5,234.0	3,471.1	773.4	1,036.6	673.0	625.9	4,144.1
1988:3	4,926.9	3,263.4	771.1	958.6	623.0	556.8	4,042.7
1988:4	5,017.3	3,324.0	752.8	1,011.4	650.5	579.7	4,069.4
1989:1	5,113.1	3,381.4	769.6	1,016.0	659.6	605.6	4,106.8
1989:2	5,201.7	3,444.1	775.0	1,033.2	676.6	626.1	4,132.5
1989:3	5,281.0	3,508.1	779.1	1,038.9	673.6	628.5	4,162.9
1989:4	5,340.2	3,550.6	770.1	1,058.3	682.3	643.5	4,174.1
1990:1	5,433.1	3,629.4	752.9	1,082.9	696.6	664.7	4,193.4

CONSUMER PRICE INDEX (CPI): ALL ITEMS

Urban Consumers, SA: 1982-84 = 100

Percent Change from Year-Ago-Month



CONSUMER PRICE INDICES

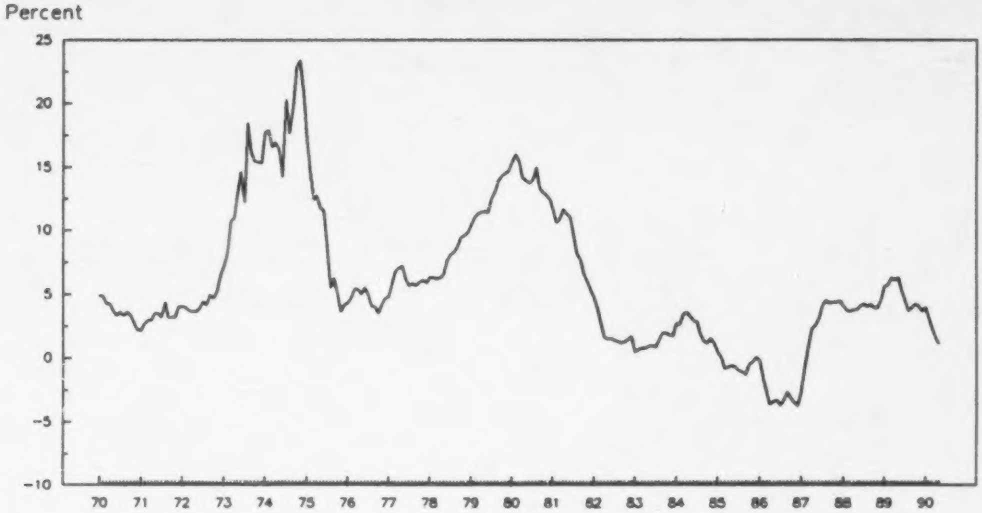
(1982-1984 = 100, SA)

Year / Month	Energy	Food & Beverage	Housing	Renter's Cost	All Items	All Items Less: Energy	All Items Less: Food
1980	86.1	86.7	81.0		82.4	81.9	81.4
1981	97.7	93.5	90.4		90.9	90.1	90.3
1982	99.2	97.3	96.9		96.5	96.2	96.3
1983	99.9	99.5	99.5	103.1	99.6	99.6	99.6
1984	100.9	103.2	103.6	108.6	103.9	104.4	104.0
1985	101.5	105.6	107.7	115.3	107.7	108.5	108.0
1986	88.2	109.0	110.9	121.9	109.7	112.7	109.7
1987	88.2	113.5	114.2	127.5	113.7	117.4	113.6
1988	88.9	118.2	118.4	133.0	118.3	122.5	118.2
1989	93.9	124.9	122.9	138.4	124.0	128.3	123.7
1989:2	90.9	122.4	121.2	136.2	121.9	126.2	121.6
1989:3	91.6	123.3	121.6	137.6	122.5	126.8	122.2
1989:4	96.2	123.9	121.8	137.1	123.3	127.2	123.0
1989:5	97.0	124.6	122.2	137.4	123.8	127.7	123.5
1989:6	96.4	125.0	122.6	138.0	124.1	128.1	123.8
1989:7	95.9	125.3	123.3	139.6	124.5	128.6	124.2
1989:8	93.8	125.7	123.5	139.1	124.5	128.8	124.1
1989:9	93.2	126.0	123.7	138.7	124.8	129.2	124.4
1989:10	94.1	126.5	124.2	139.8	125.4	129.8	125.0
1989:11	93.8	127.1	124.7	140.5	125.8	130.3	125.4
1989:12	94.1	127.6	125.2	141.0	126.3	130.8	125.9
1990:1	98.9	129.9	126.1	142.3	127.7	131.8	127.1
1990:2	98.2	130.6	126.3	143.4	128.3	132.6	127.7
1990:3	97.4	131.1	126.9	143.8	129.9	133.3	128.3
1990:4	97.0	130.8	127.0	143.9	129.1	133.6	128.5

PRODUCER PRICE INDEX (PPI): ALL COMMODITIES

1982 = 100

Percent Change from Year-Ago-Month

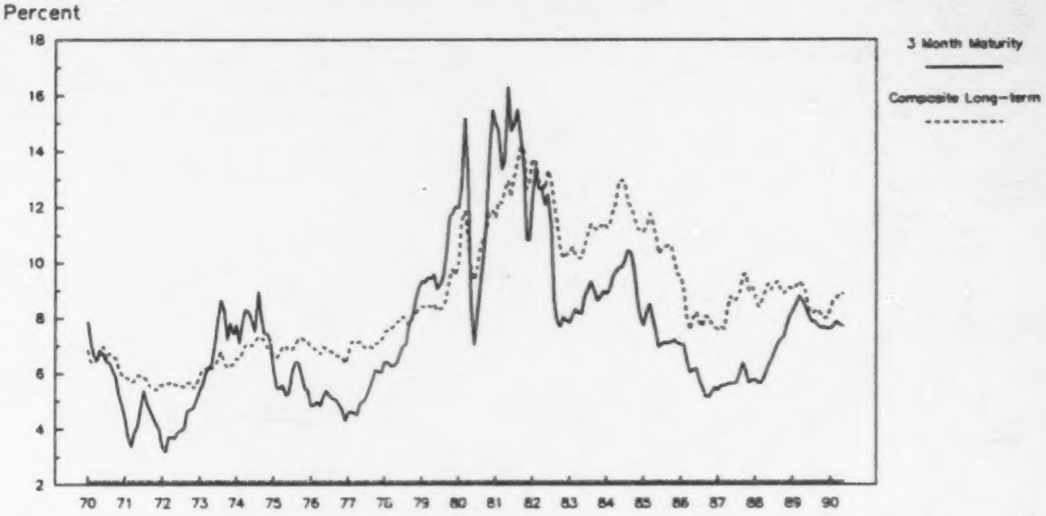


PRODUCER PRICE INDICES (PPI)

Year / Month	ALL COMMODITIES	FINISHED GOODS	INDUSTRIAL COMMODITIES	INTERMEDIATE MATERIALS, SUPPLIES & COMPONENTS
1980	89.8	88.0	88.0	90.3
1981	98.0	96.2	97.4	98.6
1982	100.0	100.0	100.0	100.0
1983	101.3	101.6	101.1	100.6
1984	103.7	103.8	103.3	103.1
1985	103.2	104.7	103.7	102.7
1986	100.2	103.2	100.0	99.1
1987	102.8	105.4	102.6	101.5
1988	106.9	108.0	106.3	107.1
1989	112.2	113.5	111.6	112.0
1989:2	110.8	111.7	110.1	111.0
1989:3	111.5	112.1	110.5	111.5
1989:4	112.3	113.0	111.8	112.4
1989:5	113.2	114.2	112.4	112.7
1989:6	112.9	114.3	112.4	112.7
1989:7	112.8	114.1	112.2	112.5
1989:8	112.0	113.4	111.4	112.0
1989:9	112.4	113.6	111.9	112.4
1989:10	112.8	114.9	112.4	112.3
1989:11	112.7	114.8	112.2	112.2
1989:12	113.0	115.3	112.3	112.0
1990:1	114.9	117.5	114.2	113.4
1990:2	114.4	117.4	113.6	112.5
1990:3	114.2	117.0	113.2	112.4
1990:4	114.0	117.0	113.1	112.8

U.S. TREASURY SECURITY RATES

Short Rates vs. Long Rates

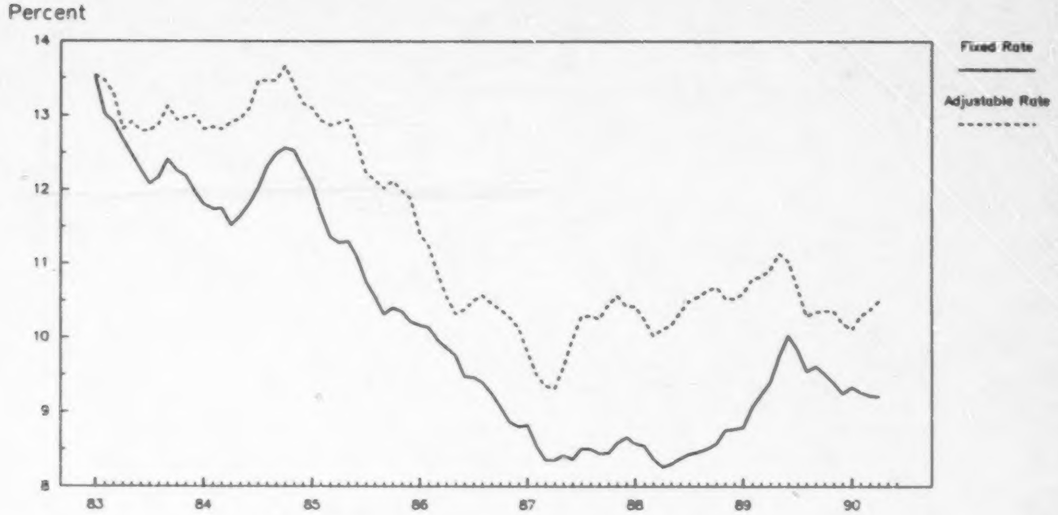


FINANCIAL INDICATORS

Year / Month	Dow Jones Index	NYSE Common Stock Price Index	S & P's Composite Common Stock	U.S. TREASURY RATES (3 Month)	U.S. TREASURY RATES Composite (Lg Term)	CONVENTIONAL HOME MORTAGE RATES Adjustable	CONVENTIONAL HOME MORTAGE RATES Fixed
1980	891.4	68.1	5.3	11.4	10.8		
1981	932.9	74.0	5.2	14.0	12.9		
1982	884.4	68.9	5.8	10.6	12.2		
1983	1,190.3	92.6	4.4	8.6	10.8	12.5	13.0
1984	1,178.5	92.5	4.6	9.5	12.0	12.0	13.2
1985	1,328.2	108.1	4.2	7.5	10.8	11.0	12.5
1986	1,792.8	136.0	3.5	6.0	8.1	9.5	10.6
1987	2,276.0	161.7	3.1	5.8	8.6	8.5	10.0
1988	2,060.8	149.9	3.6	6.7	9.0	8.5	10.4
1989	2,508.9	180.0	3.5	8.1	8.6	9.5	10.6
1989:2	2,304.3	165.1	3.6	8.5	9.2	9.1	10.8
1989:3	2,283.1	164.6	3.7	8.8	9.3	9.2	10.8
1989:4	2,348.9	169.4	3.6	8.6	9.2	9.4	10.9
1989:5	2,439.6	175.3	3.5	8.4	8.9	9.8	11.1
1989:6	2,494.9	180.8	3.4	8.1	8.4	10.0	11.0
1989:7	2,554.0	185.1	3.4	7.9	8.2	9.8	10.7
1989:8	2,691.1	192.9	3.3	7.9	8.3	9.6	10.3
1989:9	2,693.4	193.0	3.3	7.8	8.3	9.6	10.4
1989:10	2,692.0	192.5	3.3	7.6	8.1	9.5	10.4
1989:11	2,642.5	188.5	3.4	7.7	8.0	9.4	10.4
1989:12	2,728.5	192.7	3.3	7.6	8.0	9.3	10.2
1990:1	2,679.2	188.0	3.4	7.6	8.4	9.3	10.1
1990:2	2,614.2	182.6	3.5	7.7	8.7	9.3	10.3
1990:3	2,700.1	186.3	3.5	7.9	8.7	9.2	10.4
1990:4	2,708.3	185.6	3.5	7.8	8.9	9.2	10.5

CONVENTIONAL HOME MORTGAGE RATES

Fixed Rate vs. Adjustable Rate

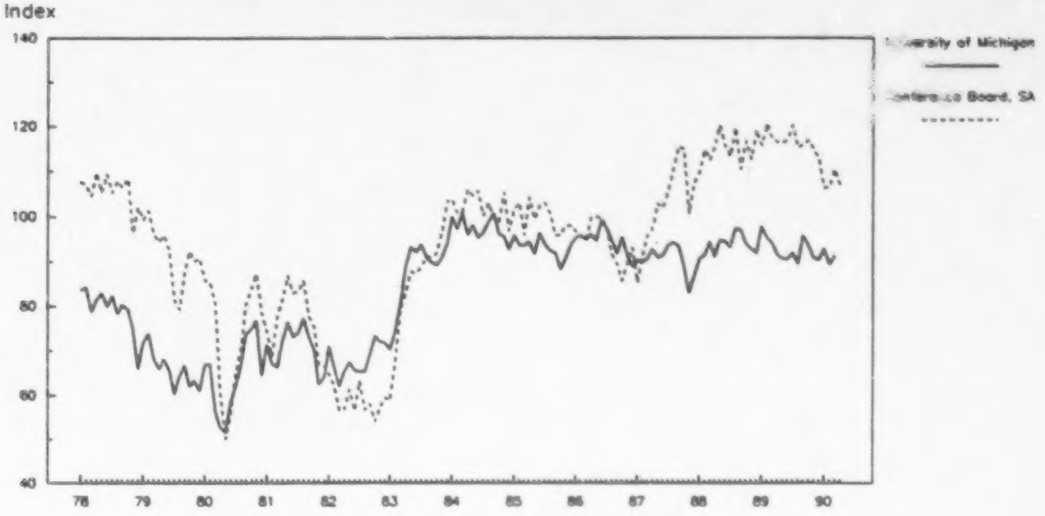


EXCHANGE RATES

	FOREIGN EXCHANGE RATES (Units of Foreign Currency = $1.00)					WEIGHTED-AVERAGE EXCHANGE VALUE of U.S. Dollars
Year / Month	CANADA	FRANCE	GERMANY	JAPAN	UNITED KINGDOM	(March 1973 = 100)
1980	1.17	4.23	1.82	226.53	0.43	87.38
1981	1.20	5.43	2.26	220.45	0.49	103.26
1982	1.23	6.58	2.43	249.05	0.57	116.50
1983	1.23	7.62	2.55	237.45	0.66	125.33
1984	1.30	8.74	2.85	237.59	0.75	138.34
1985	1.37	8.99	2.94	238.47	0.77	143.23
1986	1.39	6.93	2.17	168.50	0.68	112.27
1987	1.33	6.01	1.80	144.63	0.61	96.95
1988	1.23	5.96	1.76	128.14	0.56	92.75
1989	1.18	6.38	1.88	138.00	0.61	98.52
1989:2	1.19	6.30	1.85	127.74	0.57	95.77
1989:3	1.20	6.33	1.87	130.55	0.58	96.99
1989:4	1.19	6.32	1.87	132.04	0.59	97.24
1989:5	1.19	6.58	1.95	137.86	0.61	100.81
1989:6	1.20	6.71	1.98	143.98	0.64	103.09
1989:7	1.19	6.41	1.89	140.42	0.61	99.12
1989:8	1.18	6.51	1.93	141.49	0.63	100.44
1989:9	1.18	6.59	1.95	145.07	0.64	101.87
1989:10	1.17	6.33	1.87	142.21	0.63	98.92
1989:11	1.17	6.22	1.83	143.53	0.64	97.99
1989:12	1.16	5.94	1.74	143.69	0.63	94.88
1990:1	1.17	5.76	1.69	144.98	0.61	93.00
1990:2	1.20	5.69	1.68	145.69	0.59	92.25
1990:3	1.18	5.76	1.71	153.31	0.62	94.11
1990:4	1.16	5.66	1.69	158.46	0.61	93.51

CONSUMER CONFIDENCE INDICES

University of Michigan (February 1966 = 100)
Conference Board (1985 Average = 100)

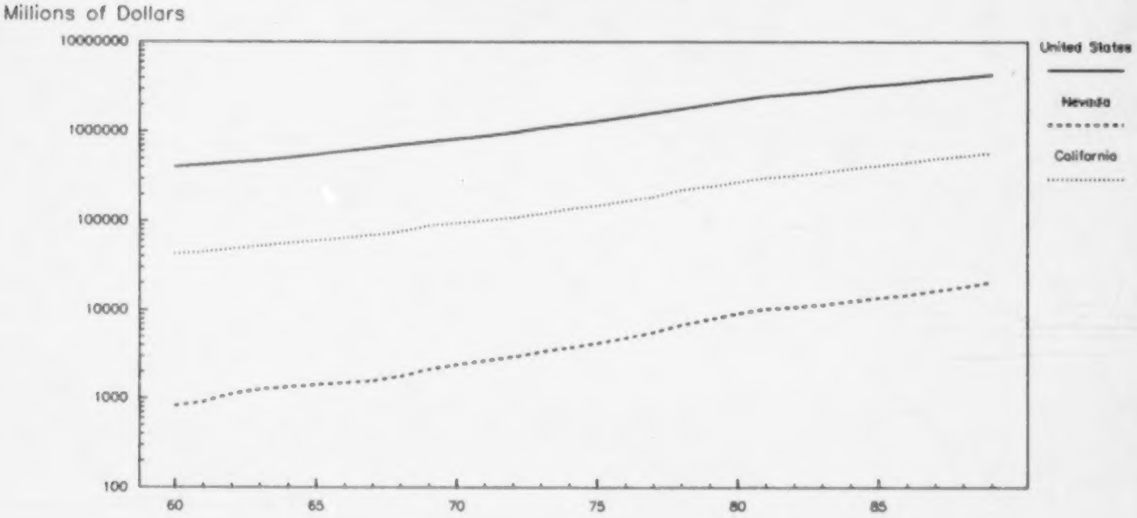


CONSUMER CONFIDENCE INDICES

Year / Month	University of Michigan CONSUMER CONFIDENCE (Feb 1966= 100)	Conference Board INDEX of CONSUMER CONFIDENCE, SA (1985 = 100)
1978	79.4	106.0
1979	66.0	91.9
1980	64.4	73.8
1981	70.7	77.4
1982	68.0	59.0
1983	87.5	85.7
1984	97.5	102.3
1985	93.2	100.0
1986	94.8	94.6
1987	90.6	102.6
1988	93.7	115.2
1989	92.8	116.8
1989:2	95.4	120.7
1989:3	94.3	117.4
1989:4	91.5	116.6
1989:5	90.7	116.7
1989:6	90.6	117.2
1989:7	92.0	120.4
1989:8	89.6	115.4
1989:9	95.8	116.3
1989:10	93.9	117.0
1989:11	90.9	115.1
1989:12	90.5	113.0
1990:1	93.0	106.5
1990:2	89.5	106.7
1990:3	91.3	110.6
1990:4		107.3

WESTERN REGION and UNITED STATES

PERSONAL INCOME
United States, Nevada, and California
Semilogarithmic Chart



PERSONAL INCOME: Western Region and United States

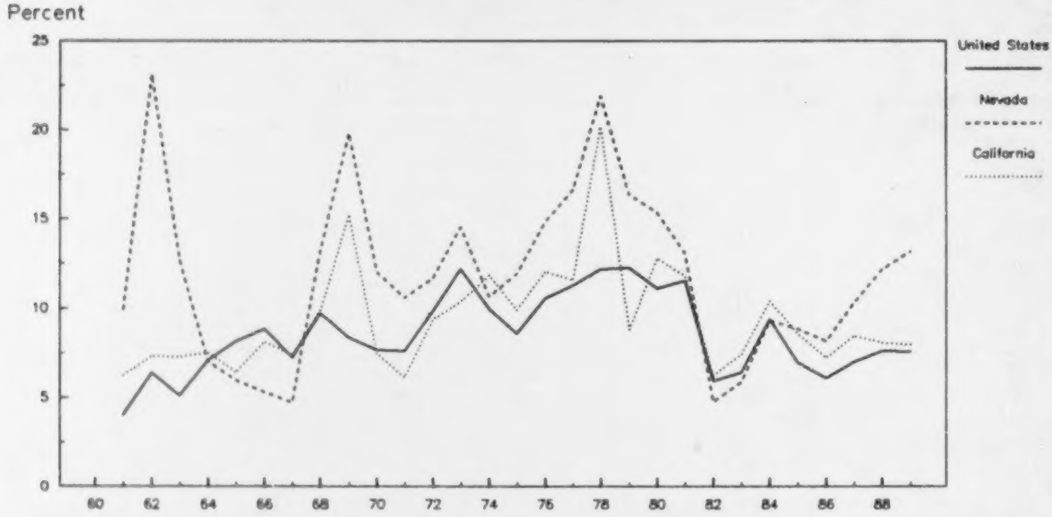
(Millions of Dollars, SA)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1970	1,544.0	6,801.0	95,039.5	3,772.0	2,486.8	2,406.3	8,169.3	3,513.0	14,234.0	825,534.0
1971	1,679.0	7,720.0	100,866.8	4,059.5	2,724.5	2,661.5	8,920.3	3,904.0	14,961.5	888,536.0
1972	1,827.0	8,879.3	110,339.3	4,473.8	3,097.8	2,972.5	10,006.3	4,380.8	16,163.3	976,181.0
1973	2,148.8	10,309.8	121,784.5	4,967.0	3,635.0	3,404.8	11,342.0	4,928.8	18,299.8	1,095,289.0
1974	2,650.3	11,656.8	136,191.5	5,702.5	4,265.3	3,768.8	12,815.8	5,529.5	20,721.8	1,204,899.3
1975	3,780.0	12,364.0	149,697.8	6,158.8	4,548.8	4,219.3	14,071.5	6,155.8	23,258.3	1,308,482.0
1976	4,559.3	13,837.0	167,707.5	6,669.5	5,148.0	4,845.8	16,057.8	7,014.3	26,071.5	1,447,002.0
1977	4,701.3	15,623.0	187,132.0	7,209.5	5,673.3	5,652.0	18,082.3	7,987.5	29,153.3	1,610,363.0
1978	4,791.0	18,549.3	224,937.3	8,042.8	6,579.3	6,891.3	20,822.5	9,230.3	34,250.5	1,806,968.0
1979	5,021.5	21,947.0	244,774.8	9,030.5	7,289.5	8,019.0	23,657.8	10,489.3	39,486.0	2,028,510.3
1980	5,599.5	25,091.5	276,105.5	10,279.0	8,128.8	9,250.0	26,062.5	11,710.3	44,561.8	2,254,076.0
1981	6,448.8	28,339.0	308,729.5	11,051.8	8,945.8	10,458.8	27,889.5	13,124.5	49,259.5	2,514,231.0
1982	7,739.5	29,756.0	328,032.5	11,731.8	9,079.0	10,956.5	28,262.8	14,091.0	51,420.0	2,663,432.0
1983	8,758.5	32,750.5	352,438.8	12,875.3	9,777.8	11,599.8	30,010.3	14,997.8	54,551.3	2,834,385.0
1984	9,139.8	36,800.5	389,180.5	13,628.3	10,357.3	12,678.8	32,302.3	16,426.3	58,415.8	3,101,163.0
1985	9,801.8	40,963.5	422,604.3	14,588.5	10,868.8	13,801.5	33,951.3	17,512.5	62,031.8	3,317,545.0
1986	9,820.0	44,769.0	453,109.8	15,607.3	11,198.3	14,931.8	35,479.0	18,391.0	66,280.5	3,519,364.0
1987	9,681.0	48,712.8	491,502.8	16,832.3	11,788.8	16,473.3	37,829.5	19,351.0	71,005.8	3,766,092.0
1988	9,991.3	52,253.3	531,249.5	18,388.3	12,630.8	18,475.5	41,170.5	20,598.3	76,542.3	4,053,282.3
1989	11,153.0	56,476.3	573,703.3	20,357.8	13,954.0	20,911.5	44,514.3	22,239.0	83,978.5	4,360,919.0
1988:3	10,050.0	52,830.0	537,847.0	18,553.0	12,704.0	18,763.0	41,444.0	20,745.0	77,037.0	4,083,999.0
1988:4	10,209.0	53,564.0	548,177.0	19,073.0	13,107.0	19,300.0	42,627.0	21,191.0	78,737.0	4,166,501.0
1989:1	10,528.0	55,057.0	558,333.0	19,514.0	13,695.0	20,052.0	43,306.0	21,544.0	81,350.0	4,258,945.0
1989:2	11,193.0	55,975.0	568,853.0	20,105.0	13,903.0	20,630.0	44,371.0	22,091.0	83,057.0	4,331,901.0
1989:3	11,578.0	56,636.0	580,788.0	20,682.0	13,781.0	21,132.0	44,737.0	22,372.0	84,603.0	4,381,863.0
1989:4	11,313.0	58,237.0	586,839.0	21,130.0	14,437.0	21,832.0	45,643.0	22,949.0	86,904.0	4,470,967.0

PERSONAL INCOME

United States, Nevada and California, SA

Percent Change from Previous Year



PERSONAL INCOME: Western Region and United States

(Percent change of SA data)

Year / Quarter	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1970	12.35	13.96	7.51	15.09	10.03	12.04	8.57	10.86	4.72	7.70
1971	8.74	13.51	6.13	7.62	9.56	10.61	9.19	11.13	5.11	7.63
1972	8.81	15.02	9.39	10.20	13.70	11.69	12.17	12.21	8.03	9.86
1973	17.61	16.11	10.37	11.03	17.34	14.54	13.35	12.51	13.22	12.20
1974	23.34	13.07	11.83	14.81	17.34	10.69	12.99	12.19	13.24	10.01
1975	42.63	6.07	9.92	8.00	6.65	11.95	9.80	11.33	12.24	8.60
1976	20.62	11.91	12.03	8.29	13.17	14.85	14.12	13.95	12.10	10.59
1977	3.11	12.91	11.58	8.10	10.20	16.64	12.61	13.88	11.82	11.29
1978	1.91	18.73	20.20	11.56	15.97	21.93	15.15	15.56	17.48	12.21
1979	4.81	18.32	8.82	12.28	10.80	16.36	13.62	13.64	15.29	12.26
1980	11.51	14.33	12.80	13.83	11.51	15.35	10.16	11.64	12.85	11.12
1981	15.17	12.94	11.82	7.52	10.05	13.07	7.01	12.08	10.54	11.54
1982	20.02	5.00	6.25	6.15	1.49	4.76	1.34	7.36	4.39	5.93
1983	13.17	10.06	7.44	9.75	7.70	5.87	6.18	6.43	6.09	6.42
1984	4.35	12.37	10.43	5.85	5.93	9.30	7.64	9.52	7.08	9.41
1985	7.24	11.31	8.59	7.05	4.94	8.86	5.10	6.61	6.19	6.98
1986	0.19	9.29	7.22	6.98	3.03	8.19	4.50	5.02	6.85	6.08
1987	-1.42	8.81	8.47	7.85	5.27	10.32	6.63	5.22	7.13	7.01
1988	3.20	7.27	8.09	9.24	7.14	12.15	8.83	6.45	7.80	7.63
1989	11.63	8.08	7.99	10.71	10.48	13.19	8.12	7.97	9.72	7.59
1988:3	3.67	8.26	8.94	9.37	7.24	12.85	8.81	7.02	8.13	8.11
1988:4	4.37	5.51	7.73	9.05	9.22	11.79	9.10	6.48	7.35	6.71
1989:1	8.12	8.53	8.72	9.73	12.43	13.76	8.75	7.70	9.33	8.08
1989:2	12.28	7.88	8.27	10.81	10.95	13.27	8.78	8.01	9.30	7.70
1989:3	15.20	7.20	7.98	11.48	8.48	12.63	7.95	7.84	9.82	7.29
1989:4	10.81	8.72	7.05	10.78	10.15	13.12	7.08	8.30	10.37	7.31

CIVILIAN EMPLOYMENT
and UNEMPLOYMENT RATES: Western Region and United States

(Thousands)

Year / Month	ALASKA			ARIZONA			CALIFORNIA			HAWAII			IDAHO		
	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA
1979	166.0	10.2		999.0	5.3		10,566.4	6.6		395.0	6.6		407.0	5.9	
1980	170.0	10.6		1,186.4	7.2		10,794.2	7.3		418.0	5.0		395.0	8.6	
1981	178.0	10.1		1,187.0	6.6		10,937.3	8.0		427.0	5.6		396.0	8.1	
1982	190.0	11.1		1,204.2	11.0		10,967.2	11.0		430.0	7.2		400.0	11.0	
1983	210.0	11.4		1,261.0	10.0		11,094.6	10.7		442.0	6.8		413.0	10.9	
1984	222.0	11.3		1,370.0	5.2		11,631.0	8.4		445.0	6.1		430.0	7.7	
1985	226.0	10.6		1,381.0	7.0		12,047.8	7.8		452.0	6.0		428.0	8.6	
1986	229.0	12.2		1,476.0	7.5		12,442.5	7.2		468.0	5.1		427.0	9.6	
1987	223.0	12.1		1,511.0	6.7		12,946.6	6.1		494.0	4.1		425.9	8.8	
1988	227.0	10.1		1,556.0	6.7		13,383.8	5.6		502.0	3.2		444.9	6.6	
1989	236.0	7.2		1,617.0	5.5		13,780.0	5.4		511.0	2.5		464.0	5.4	
1989:3	224.8	8.8	8.4	1,612.3	6.0	6.0	13,601.4	4.9	4.9	507.5	2.8	2.8	451.2	6.9	6.6
1989:4	230.6	7.6	7.4	1,624.3	5.6	5.6	13,508.6	5.4	5.4	507.0	2.8	2.8	459.4	5.5	5.4
1989:5	237.8	6.6	6.7	1,667.9	5.0	5.1	13,707.9	5.4	5.4	512.4	2.8	2.7	466.5	5.2	5.2
1989:6	245.3	6.5	6.7	1,625.7	6.0	6.1	13,768.9	5.9	5.9	515.6	3.1	3.1	473.2	5.1	5.3
1989:7	251.3	5.2	5.6	1,602.6	6.2	6.2	13,958.3	6.2	6.2	515.6	2.2	2.2	471.8	4.8	4.9
1989:8	250.2	5.0	5.3	1,598.9	6.6	6.5	13,993.6	4.9	4.9	517.0	1.6	1.6	468.4	5.0	5.2
1989:9	241.6	6.7	7.0	1,609.8	5.5	5.5	13,909.4	5.2	5.2	506.3	2.0	2.0	466.1	4.2	4.3
1989:10	236.3	6.9	6.9	1,625.7	4.9	5.0	14,035.9	4.8	4.8	511.4	2.4	2.4	468.4	4.3	4.5
1989:11	235.4	6.6	6.5	1,630.9	4.5	4.6	13,982.1	5.1	5.2	517.3	2.7	2.7	468.8	4.7	4.7
1989:12	234.4	7.6	7.4	1,629.5	4.2	4.2	13,829.2	5.0	5.0	516.3	2.4	2.5	468.6	4.7	4.6
1990:1	229.4	9.4	8.7	1,608.4	4.6	4.5	13,647.0	5.8	5.8	509.1	3.0	3.0	467.5	6.1	5.8
1990:2	231.1	9.6	9.1	1,615.6	4.9	4.9	13,662.0	5.7	5.6	512.6	3.3	3.3	463.5	7.2	6.9
1990:3	232.2	8.6	8.2	1,611.0	5.4	5.4	13,779.0	5.6	5.5	519.0	3.1	3.1	466.3	7.2	6.9

Year / Month	NEVADA			OREGON			UTAH			WASHINGTON			UNITED STATES		
	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA	Employment	Unemployment Rates	SA
1979	379.8	5.3		1,134.0	7.3		579.0	4.5		1,806.0	7.3		98,826.2	6.2	
1980	402.6	6.7		1,189.0	9.0		594.0	6.7		1,828.0	8.5		99,302.7	7.7	
1981	430.8	7.7		1,207.0	10.9		604.0	7.1		1,806.0	10.5		100,397.3	8.2	
1982	434.0	11.3		1,171.0	13.1		622.0	8.5		1,779.0	13.8		99,526.4	10.8	
1983	437.2	11.0		1,195.8	12.1		628.0	10.2		1,838.0	12.6		100,833.5	10.6	
1984	457.7	8.5		1,210.0	10.3		658.0	7.0		1,857.0	10.4		105,005.3	8.1	
1985	478.5	8.8		1,200.0	9.7		687.0	6.3		1,921.0	8.8		107,149.8	7.7	
1986	500.0	6.4		1,245.0	9.2		709.0	6.3		2,018.0	8.9		109,597.5	7.5	
1987	521.5	6.7		1,301.0	6.6		709.0	6.8		2,085.0	8.2		112,440.4	6.6	
1988	556.0	5.4		1,343.0	6.2		722.0	5.1		2,173.0	6.6		114,968.4	5.8	
1989	572.0	5.2		1,391.0	6.0		751.5	4.4		2,300.0	6.6		117,325.8	5.6	
1989:3	566.5	5.7	5.6	1,369.7	6.8	6.7	728.1	5.8	5.7	2,243.5	7.1	7.0	115,844.0	5.5	5.4
1989:4	572.3	5.0	5.0	1,394.7	6.2	6.2	729.1	5.3	5.3	2,283.9	6.6	6.5	116,347.0	5.4	5.3
1989:5	571.7	4.9	4.9	1,391.1	5.8	5.8	728.1	4.9	4.9	2,336.0	6.2	6.2	117,039.0	5.3	5.3
1989:6	567.9	5.4	5.4	1,419.7	5.9	6.0	748.5	4.2	4.2	2,327.5	6.4	6.5	118,719.0	5.8	5.9
1989:7	572.0	5.3	5.4	1,426.6	5.9	6.1	758.6	4.1	4.1	2,322.8	6.6	6.7	119,502.0	5.6	5.7
1989:8	571.7	4.9	5.0	1,409.8	5.5	5.6	761.8	4.1	4.1	2,340.9	6.3	6.4	119,092.0	5.4	5.4
1989:9	572.1	5.2	5.3	1,386.1	5.4	5.4	775.5	3.8	3.8	2,307.1	6.1	6.2	117,498.0	5.4	5.4
1989:10	584.7	5.0	5.0	1,391.2	5.3	5.3	773.4	3.6	3.7	2,345.1	5.9	5.9	118,194.0	5.3	5.3
1989:11	585.0	4.9	4.9	1,388.3	5.6	5.7	773.5	3.7	3.7	2,325.4	6.3	6.3	118,168.0	5.5	5.5
1989:12	586.7	4.6	4.6	1,382.7	5.6	5.5	778.7	4.0	4.1	2,363.6	6.5	6.4	117,698.0	5.4	5.4
1990:1	577.7	5.3	5.2	1,375.6	6.2	6.0	758.0	4.6	4.5	2,330.4	7.0	6.8	116,037.0	6.3	6.2
1990:2	584.4	5.2	5.1	1,358.5	6.4	6.3	752.5	4.8	4.7	2,372.9	7.0	6.8	116,308.0	6.2	6.1
1990:3	588.5	5.1	5.1	1,345.0	6.0	5.9	749.8	5.5	5.4	2,401.8	6.0	5.9	117,093.0	5.7	5.6

INDUSTRIAL EMPLOYMENT: Alaska

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANUFACTURING	TRANSPORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	170.9	6.7	14.0	17.2	29.4	10.6	8.1	30.2	17.7	37.1
1981	187.1	8.9	14.1	18.3	33.2	13.0	8.8	33.5	17.5	39.9
1982	201.9	8.9	12.9	18.6	37.7	16.9	9.9	37.0	17.7	42.4
1983	214.4	8.2	12.1	18.8	41.4	20.7	10.7	39.7	17.7	45.1
1984	225.7	8.7	11.3	19.2	44.5	20.4	12.2	43.0	18.1	48.4
1985	230.7	9.5	12.1	18.7	45.8	18.6	12.8	44.8	17.6	50.8
1986	220.7	9.1	12.6	17.9	43.7	13.4	12.4	43.7	17.6	50.4
1987	210.1	8.8	12.9	17.6	41.1	10.1	11.3	42.5	17.9	47.9
1988	213.7	9.6	15.0	17.4	42.0	9.0	10.7	43.6	17.9	48.6
1989	227.3	10.1	16.0	20.7	44.2	9.8	10.5	47.1	18.4	50.6
1989:3	211.3	9.7	13.5	16.7	41.1	7.1	10.3	43.8	17.7	51.4
1989:4	218.9	9.7	14.8	19.0	42.2	8.3	10.3	45.0	17.7	51.9
1989:5	229.3	9.9	16.4	22.2	44.5	10.0	10.3	47.1	18.1	50.8
1989:6	241.5	10.4	19.7	24.9	46.9	11.6	10.6	49.8	18.8	48.8
1989:7	249.0	10.5	25.3	26.0	47.5	12.5	10.6	50.6	19.0	47.0
1989:8	249.1	10.6	23.5	26.4	47.3	12.7	10.6	50.9	19.0	48.1
1989:9	243.7	10.6	18.3	23.3	46.6	12.9	10.6	49.8	18.9	52.7
1989:10	230.9	10.6	13.8	19.8	45.1	11.8	10.5	47.8	18.7	52.8
1989:11	223.6	10.4	12.5	18.9	44.4	9.5	10.6	46.8	18.6	51.9
1989:12	221.2	9.9	11.6	18.6	44.9	8.1	10.5	46.9	19.0	51.7
1990:1	213.0	9.9	11.3	17.9	42.4	7.0	10.4	45.7	18.4	50.0
1990:2	217.6	10.2	12.1	18.1	42.3	7.1	10.5	46.2	18.4	52.7
1990:3	221.4	10.4	13.6	18.3	42.9	8.0	10.6	46.5	18.3	52.8

INDUSTRIAL EMPLOYMENT: Arizona

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANUFACTURING	TRANSPORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	1,014.0	21.0	154.4	51.3	243.0	76.6	58.2	207.7	39.1	162.7
1981	1,040.8	25.0	160.6	54.4	253.3	72.0	60.8	215.3	38.2	161.3
1982	1,029.8	17.7	154.5	56.6	252.6	64.7	62.0	221.8	37.8	162.1
1983	1,077.8	14.3	155.8	57.2	260.9	78.6	65.7	242.2	38.3	164.8
1984	1,181.9	13.1	172.8	59.8	286.3	97.0	72.1	273.2	39.2	168.3
1985	1,278.6	11.9	181.6	62.9	311.1	112.1	81.0	299.9	41.4	176.7
1986	1,341.4	10.9	184.1	66.4	325.2	113.6	89.1	325.9	41.5	184.6
1987	1,386.0	11.4	187.4	71.7	340.5	103.1	94.6	345.3	43.0	189.0
1988	1,419.3	11.9	189.0	74.1	351.3	93.7	94.2	368.0	43.6	193.6
1989	1,457.2	12.2	188.0	76.7	366.7	85.9	92.6	389.0	44.7	201.4
1989:3	1,464.6	12.1	188.0	75.8	366.7	85.4	92.3	389.4	44.3	210.6
1989:4	1,462.2	12.1	187.8	76.2	363.9	84.7	92.2	388.8	44.7	211.8
1989:5	1,462.3	11.9	187.3	76.4	365.0	85.1	92.3	387.2	45.3	211.8
1989:6	1,431.5	12.2	188.0	76.8	364.0	86.9	92.4	389.1	44.1	178.0
1989:7	1,413.3	12.2	187.3	77.3	359.6	86.9	92.7	383.8	43.1	170.4
1989:8	1,421.4	12.3	187.8	77.1	360.2	87.9	92.9	383.7	43.8	175.7
1989:9	1,461.9	12.3	188.0	76.9	364.0	87.9	93.0	388.8	45.7	205.3
1989:10	1,483.5	12.2	188.4	77.7	369.5	87.4	93.1	394.6	45.7	214.9
1989:11	1,496.8	12.3	188.5	78.4	377.7	85.3	93.6	398.6	45.7	216.7
1989:12	1,507.1	12.5	188.5	79.6	385.8	83.7	93.7	402.1	45.9	215.3
1990:1	1,481.6	12.7	187.6	78.4	377.9	81.1	93.6	400.6	45.9	203.8
1990:2	1,498.1	12.7	187.5	78.9	376.1	80.5	93.6	405.8	45.9	217.1
1990:3	1,505.4	12.7	187.5	80.1	376.8	81.3	93.9	408.1	46.0	219.0

INDUSTRIAL EMPLOYMENT: California

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	9,848.8	43.5	2,018.2	546.3	2,266.9	428.3	623.1	2,158.8	333.8	1,430.1
1981	9,985.3	49.2	2,032.3	554.8	2,301.6	407.6	642.9	2,240.5	327.6	1,428.8
1982	9,810.3	50.4	1,957.7	542.8	2,275.3	349.0	642.4	2,257.7	327.4	1,407.8
1983	9,965.8	48.1	1,946.8	536.9	2,343.9	369.3	661.7	2,332.2	328.0	1,396.4
1984	10,573.8	50.0	2,065.5	554.6	2,507.4	445.2	694.2	2,509.5	334.4	1,413.0
1985	10,979.1	49.9	2,076.1	568.7	2,626.1	496.1	724.5	2,644.8	343.1	1,449.7
1986	11,258.1	42.6	2,069.7	574.6	2,686.4	531.0	763.7	2,751.3	346.3	1,492.5
1987	11,678.5	41.1	2,107.6	582.6	2,761.4	574.6	800.8	2,926.7	349.7	1,534.1
1988	12,075.1	42.3	2,147.9	586.4	2,869.3	607.0	812.8	3,074.9	354.0	1,580.4
1989	12,521.5	41.6	2,158.6	599.5	2,968.4	643.6	836.3	3,271.5	357.1	1,645.1
1989:3	12,441.9	40.8	2,157.4	595.3	2,928.3	616.2	828.7	3,254.5	360.2	1,660.5
1989:4	12,466.1	41.4	2,157.0	598.1	2,926.4	629.8	829.9	3,261.7	359.6	1,662.2
1989:5	12,507.2	41.7	2,158.9	600.8	2,942.9	638.1	831.8	3,259.6	360.3	1,673.1
1989:6	12,569.6	42.2	2,166.0	605.4	2,964.3	651.1	835.9	3,271.4	360.4	1,672.9
1989:7	12,455.0	42.4	2,168.9	607.1	2,962.9	657.9	839.8	3,268.1	354.2	1,553.7
1989:8	12,432.1	42.2	2,178.9	566.2	2,969.7	666.3	842.9	3,280.4	356.0	1,529.5
1989:9	12,591.2	42.0	2,174.1	610.8	2,979.0	671.4	843.4	3,295.9	355.0	1,619.6
1989:10	12,662.5	41.6	2,161.0	609.5	2,993.0	671.1	843.0	3,304.7	354.6	1,684.0
1989:11	12,740.7	41.7	2,153.9	609.6	3,035.4	667.2	846.3	3,321.9	354.6	1,710.1
1989:12	12,804.5	41.9	2,148.6	610.8	3,088.8	663.3	849.7	3,337.2	356.9	1,707.3
1990:1	12,547.7	41.2	2,125.8	600.6	2,972.7	630.9	845.1	3,279.7	352.1	1,699.6
1990:2	12,639.3	41.2	2,132.7	600.9	2,981.6	634.5	848.7	3,327.5	354.1	1,718.1
1990:3	12,732.6	41.8	2,140.0	602.8	2,988.5	642.8	853.5	3,365.5	357.2	1,740.5

INDUSTRIAL EMPLOYMENT: Hawaii

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	404.1	0.0	23.6	31.2	105.3	24.0	32.9	98.5	30.0	59.1
1981	404.8	0.0	23.0	31.9	105.5	21.9	31.7	101.9	30.5	58.6
1982	399.4	0.0	22.4	31.2	104.9	17.9	31.6	101.3	31.6	58.8
1983	406.2	0.0	22.4	31.1	109.9	17.9	31.9	105.0	32.1	59.2
1984	412.7	0.0	21.9	32.0	111.4	15.8	31.9	108.0	32.1	59.8
1985	425.8	0.0	21.9	33.2	115.7	17.2	32.0	112.7	32.4	60.9
1986	438.6	0.0	22.1	34.2	118.0	18.7	33.2	118.8	32.1	61.8
1987	460.0	0.0	21.9	36.8	123.8	21.2	33.7	126.5	32.8	63.3
1988	478.1	0.0	22.0	38.0	127.5	23.4	34.5	133.3	33.9	65.7
1989	504.8	0.0	21.3	40.2	133.0	29.2	35.2	144.6	33.9	67.7
1989:3	501.6	0.0	21.4	39.3	131.5	27.5	34.9	143.2	33.9	70.0
1989:4	499.8	0.0	21.3	39.3	130.8	27.8	34.7	142.7	33.8	69.7
1989:5	502.9	0.0	21.4	39.7	131.6	28.5	35.0	142.8	34.0	70.1
1989:6	506.5	0.0	21.6	40.4	133.4	29.6	35.3	144.7	34.1	67.6
1989:7	506.8	0.0	21.4	40.8	135.0	30.1	35.3	145.3	33.9	65.2
1989:8	507.2	0.0	21.5	40.6	134.4	30.7	35.3	145.8	33.8	65.3
1989:9	502.3	0.0	21.0	40.9	133.1	31.1	35.4	145.8	33.6	61.7
1989:10	510.2	0.0	20.9	41.0	134.0	31.0	35.4	147.0	33.8	67.2
1989:11	517.6	0.0	21.0	41.3	135.5	31.6	35.7	148.6	34.0	70.1
1989:12	518.0	0.0	20.9	41.4	136.3	30.8	35.7	148.2	33.8	71.2
1990:1	510.8	0.0	20.7	41.3	134.2	30.2	35.4	148.4	33.5	67.3
1990:2	516.8	0.0	20.7	41.6	134.6	30.2	35.6	149.8	33.3	71.1
1990:3	518.2	0.0	20.7	41.8	135.2	29.8	35.7	147.9	33.2	74.0

INDUSTRIAL EMPLOYMENT: Idaho

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	330.0	4.7	53.3	20.1	80.6	17.4	23.4	60.0	13.1	57.5
1981	327.8	5.2	52.7	20.0	80.7	16.7	23.1	60.1	12.5	56.7
1982	312.2	3.8	47.8	19.0	78.0	13.8	22.7	59.3	12.0	55.8
1983	317.9	4.1	50.3	19.1	79.4	13.1	23.0	61.0	11.9	55.9
1984	330.5	4.2	54.8	19.1	83.0	14.6	23.5	62.5	11.8	57.1
1985	335.9	3.8	54.7	19.3	84.2	15.1	23.7	65.1	11.8	58.3
1986	333.6	2.9	52.1	18.5	83.6	14.6	23.9	67.1	11.8	59.1
1987	333.5	2.6	54.1	17.9	84.9	13.5	19.2	68.1	12.0	61.4
1988	348.7	3.3	58.1	18.6	87.0	14.5	19.4	72.1	12.7	62.9
1989	367.4	3.6	60.6	19.1	94.3	16.0	19.3	76.3	12.9	65.2
1989:3	352.4	3.3	57.8	18.4	89.8	12.7	18.9	74.2	11.0	66.3
1989:4	357.8	3.5	57.2	18.7	91.0	14.7	19.0	75.3	11.9	66.5
1989:5	364.5	3.7	58.8	19.0	93.1	16.2	19.2	75.5	12.5	66.5
1989:6	372.6	3.9	61.4	19.3	95.4	17.6	19.4	76.9	13.9	64.8
1989:7	369.8	3.9	62.7	19.4	95.3	18.0	19.3	77.8	14.5	58.9
1989:8	371.2	3.9	61.5	19.7	96.7	18.2	19.6	78.4	14.4	58.8
1989:9	381.7	3.8	64.0	19.9	97.1	18.0	19.5	79.2	14.4	65.8
1989:10	383.2	3.9	63.6	19.8	97.9	18.0	19.5	78.1	13.6	68.8
1989:11	381.3	3.8	62.6	19.4	98.7	17.7	19.5	77.7	13.2	68.7
1989:12	380.1	3.7	62.8	19.4	99.5	17.0	19.6	77.1	12.9	68.1
1990:1	372.2	3.7	61.6	19.1	96.8	15.8	19.3	76.4	12.1	67.4
1990:2	373.2	3.7	61.6	19.0	96.0	15.4	19.3	77.3	11.9	69.0
1990:3	375.7	3.8	60.9	19.0	96.6	15.9	19.6	77.7	12.1	70.1

INDUSTRIAL EMPLOYMENT: Nevada

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	400.0	6.2	19.2	24.1	80.3	26.2	17.9	169.2	10.4	46.6
1981	411.1	7.9	20.1	25.1	83.6	25.4	18.3	173.7	9.5	47.6
1982	401.1	6.6	18.8	24.9	79.9	20.0	17.9	174.8	9.7	48.5
1983	402.8	5.8	19.2	24.5	80.2	19.4	18.5	177.2	9.8	48.2
1984	426.0	6.6	21.0	24.9	85.9	21.8	20.0	186.9	10.0	49.0
1985	446.4	6.1	22.0	25.3	90.9	23.9	21.4	196.4	10.5	50.1
1986	468.1	6.3	22.3	26.5	94.7	27.7	22.4	206.6	10.9	50.7
1987	500.2	8.1	23.3	27.8	102.2	30.1	23.4	221.2	11.3	52.8
1988	537.6	11.1	24.9	29.0	109.8	36.3	24.5	235.1	11.4	55.6
1989	582.3	13.6	25.4	30.6	119.7	45.6	25.5	251.1	11.7	59.0
1989:3	562.1	12.5	25.2	29.8	115.0	41.5	25.0	241.7	11.6	59.8
1989:4	569.7	13.0	25.1	30.2	115.7	43.0	25.0	246.2	11.7	59.8
1989:5	577.9	13.4	25.5	30.4	117.5	44.6	25.5	249.1	11.7	60.2
1989:6	585.8	14.0	25.6	30.6	119.8	46.5	25.7	254.0	11.9	57.7
1989:7	587.9	14.4	25.6	30.9	121.5	47.3	26.0	256.5	11.9	53.8
1989:8	593.7	14.3	25.8	30.7	122.2	49.1	26.0	259.3	12.0	54.3
1989:9	599.7	14.1	25.7	31.4	123.0	49.9	26.1	258.4	11.8	59.3
1989:10	601.8	14.2	25.6	31.4	123.5	50.3	26.0	257.0	11.8	62.0
1989:11	605.5	14.3	25.7	31.5	125.1	49.9	26.0	258.9	11.7	62.4
1989:12	606.3	14.4	25.7	31.6	126.6	49.1	25.9	258.7	11.7	62.6
1990:1	601.2	14.3	25.4	31.0	123.1	47.4	26.1	260.7	11.6	61.6
1990:2	602.9	14.4	25.7	31.1	123.0	47.1	26.3	260.6	11.6	63.1
1990:3	609.2	14.6	26.1	31.4	124.2	48.4	26.5	262.7	11.7	63.6

INDUSTRIAL EMPLOYMENT: Oregon

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	1,044.5	2.3	215.2	60.5	255.5	46.5	70.0	191.4	30.8	172.4
1981	1,018.7	2.2	202.8	59.5	253.4	37.6	68.5	192.2	29.5	173.0
1982	961.1	1.8	185.8	56.8	238.7	28.9	65.0	188.6	29.1	166.4
1983	966.7	1.6	188.8	55.4	242.6	27.0	64.5	194.6	29.0	163.2
1984	1,006.9	1.6	201.1	57.1	253.0	30.2	65.4	204.5	29.3	164.8
1985	1,030.0	1.5	199.3	57.3	258.6	33.1	66.8	215.6	29.6	168.1
1986	1,058.5	1.4	198.4	57.2	267.3	34.3	69.5	230.2	29.6	170.6
1987	1,100.1	1.4	206.2	58.5	276.7	35.3	72.1	244.4	30.5	175.1
1988	1,156.0	1.3	214.2	60.5	292.4	39.9	73.3	263.2	31.7	179.6
1989	1,206.6	1.4	217.2	62.9	309.6	45.2	75.3	279.9	32.2	182.9
1989:3	1,176.4	1.2	208.5	61.1	295.9	40.8	74.3	275.7	30.2	188.7
1989:4	1,187.2	1.3	209.7	61.8	299.1	43.3	74.7	278.7	31.3	187.3
1989:5	1,205.4	1.4	212.7	62.4	305.1	45.5	75.5	280.8	32.1	189.9
1989:6	1,227.4	1.5	221.6	63.2	311.0	47.3	76.5	283.2	33.2	189.9
1989:7	1,209.1	1.6	225.4	62.9	313.3	48.2	76.8	282.8	33.5	164.6
1989:8	1,218.9	1.6	229.7	63.2	316.2	49.6	76.8	284.1	33.5	164.2
1989:9	1,231.0	1.6	226.9	64.2	319.4	49.7	76.0	285.9	33.6	173.7
1989:10	1,237.4	1.5	222.4	63.9	319.2	49.2	75.7	284.4	32.9	188.2
1989:11	1,235.2	1.4	217.5	64.2	323.9	47.1	75.5	282.7	32.4	190.5
1989:12	1,230.1	1.4	216.2	65.2	324.8	45.1	75.4	281.1	32.9	188.0
1990:1	1,208.0	1.2	213.5	63.5	312.3	42.6	75.3	280.0	32.2	187.4
1990:2	1,210.0	1.2	212.7	64.0	308.7	41.3	75.3	284.0	31.6	191.2
1990:3	1,225.4	1.3	214.1	64.0	312.4	45.4	75.6	287.9	32.2	192.5

INDUSTRIAL EMPLOYMENT: Utah

(Thousands of Jobs)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	554.1	18.3	88.6	34.7	129.0	31.9	25.9	99.6	37.3	88.8
1981	557.8	20.2	89.5	34.5	130.2	28.3	26.4	103.7	37.1	87.9
1982	558.9	18.2	85.8	35.4	131.8	26.9	26.6	108.6	37.3	89.1
1983	566.9	14.0	85.5	36.0	133.5	28.8	27.4	112.5	37.1	91.7
1984	601.2	12.8	94.0	36.3	140.8	34.8	29.8	121.1	37.5	94.1
1985	624.4	9.7	94.0	37.0	147.9	35.5	31.1	131.3	39.4	98.4
1986	634.1	7.8	92.0	37.6	152.4	32.2	32.9	138.0	40.4	100.8
1987	640.0	8.0	92.1	37.8	152.8	26.7	33.8	147.4	39.9	101.6
1988	660.0	8.1	99.0	39.3	156.7	24.9	33.3	155.9	39.4	103.4
1989	690.8	8.1	102.6	41.3	166.2	26.2	33.3	167.1	40.2	105.9
1989:3	675.9	7.6	101.0	39.9	159.9	22.9	33.1	164.1	39.8	107.6
1989:4	682.6	7.8	100.8	40.3	161.3	24.8	33.2	165.2	40.7	108.5
1989:5	689.0	7.9	101.9	40.4	164.8	26.7	33.0	163.7	40.6	110.0
1989:6	696.4	8.1	103.3	41.0	167.5	27.9	33.3	167.3	40.9	107.1
1989:7	686.7	8.2	103.3	41.1	167.5	28.3	33.4	168.0	40.5	96.4
1989:8	692.0	8.2	103.6	41.8	169.0	28.8	33.6	169.3	40.5	97.2
1989:9	705.5	8.5	103.9	42.4	170.2	29.2	33.6	172.5	40.3	104.9
1989:10	706.1	8.5	103.9	42.6	169.5	28.9	33.5	171.4	40.2	107.6
1989:11	710.1	8.4	104.2	42.9	172.1	28.3	33.5	171.4	39.9	109.4
1989:12	713.6	8.4	103.9	43.2	176.6	26.8	33.8	172.8	39.9	108.2
1990:1	694.6	8.3	102.0	41.8	168.9	22.5	33.3	169.3	39.9	108.6
1990:2	698.2	8.4	103.1	41.9	167.8	21.6	33.4	172.2	39.7	110.1
1990:3	707.7	8.4	103.6	41.8	170.5	23.9	33.7	175.4	40.0	110.4

INDUSTRIAL EMPLOYMENT: Washington

(Thousands of Jobs)

Year/ Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	1,608.3	3.2	308.7	91.4	381.3	92.6	91.8	308.5	67.9	262.9
1981	1,612.0	3.1	303.3	90.1	379.9	90.3	92.3	318.3	66.5	260.0
1982	1,568.6	3.0	289.0	89.0	385.4	76.2	90.7	316.9	66.3	252.2
1983	1,586.2	2.7	278.4	87.9	393.9	74.2	92.3	332.8	67.6	256.4
1984	1,659.9	2.6	288.1	91.2	411.6	79.6	95.7	356.6	68.9	265.6
1985	1,710.4	2.7	295.5	93.6	420.6	80.6	99.6	375.1	70.1	272.7
1986	1,769.9	2.9	305.1	96.2	436.5	84.5	104.9	391.0	69.2	279.6
1987	1,851.8	3.0	318.4	98.5	457.6	88.9	107.5	420.7	70.6	286.6
1988	1,935.5	3.3	338.6	101.5	475.2	96.0	109.8	444.3	71.6	295.3
1989	2,045.3	3.6	361.3	107.9	500.9	106.5	112.3	473.4	72.0	307.4
1989:3	1,987.1	3.4	349.2	103.6	481.1	96.4	109.5	461.9	71.3	310.7
1989:4	2,010.8	3.5	353.6	105.3	488.9	100.9	110.2	467.5	71.5	309.4
1989:5	2,042.0	3.7	359.8	106.1	498.1	105.6	111.4	472.9	71.6	312.8
1989:6	2,073.3	3.7	365.1	109.0	506.9	109.5	113.0	477.3	72.0	316.8
1989:7	2,053.7	3.7	367.7	110.1	505.9	113.9	113.7	477.9	72.5	288.3
1989:8	2,065.7	3.7	371.4	110.5	512.0	116.8	114.4	479.5	72.8	284.6
1989:9	2,089.8	3.7	372.8	111.2	512.4	116.6	114.3	483.7	73.1	301.8
1989:10	2,100.0	3.7	371.7	111.1	511.2	115.8	113.9	485.1	72.5	315.0
1989:11	2,103.7	3.6	369.4	111.3	516.3	112.1	114.0	485.3	72.2	319.5
1989:12	2,104.9	3.5	366.4	111.9	522.6	109.1	115.1	486.9	72.2	317.2
1990:1	2,070.1	3.6	363.3	110.1	506.9	104.0	114.2	481.4	71.1	315.5
1990:2	2,073.3	3.7	361.4	109.7	502.7	103.3	114.8	485.1	71.2	321.4
1990:3	2,096.7	3.7	363.0	109.7	507.9	109.4	115.6	491.8	72.2	323.4

INDUSTRIAL EMPLOYMENT: United States

(Thousands of Jobs, SA)

Year / Month	TOTAL	MINING	MANU-FACTURING	TRANS-PORTATION	TRADE	CONSTRUCTION	F. I. R. E.	SERVICE	GOVERNMENT	
									FEDERAL	STATE / LOCAL
1980	90,416.8	1,026.8	20,287.2	5,146.6	20,310.5	4,352.6	5,160.6	17,889.8	2,866.6	13,376.3
1981	91,159.8	1,138.7	20,171.4	5,165.2	20,547.1	4,192.7	5,297.5	18,618.2	2,771.8	13,257.3
1982	89,569.1	1,128.1	18,782.4	5,082.8	20,456.4	3,908.3	5,341.6	19,035.1	2,738.4	13,096.0
1983	90,187.9	952.0	18,433.9	4,953.9	20,876.1	3,944.1	5,467.9	19,691.8	2,773.5	13,094.8
1984	94,487.2	965.4	19,379.8	5,158.5	22,096.7	4,380.1	5,688.3	20,795.6	2,807.3	13,215.6
1985	97,515.6	926.4	19,261.1	5,238.0	23,070.8	4,671.6	5,955.3	21,998.2	2,875.3	13,519.0
1986	99,523.9	777.3	18,966.1	5,254.6	23,681.6	4,817.4	6,283.0	23,052.1	2,899.2	13,792.7
1987	102,196.4	717.1	19,024.9	5,372.0	24,325.4	4,966.3	6,546.9	24,234.4	2,943.0	14,066.4
1988	105,578.7	721.0	19,404.2	5,547.4	25,137.2	5,122.1	6,676.4	25,598.8	2,970.8	14,400.8
1989	108,583.5	722.1	19,613.3	5,705.3	25,810.1	5,299.0	6,813.9	26,892.3	2,987.8	14,739.8
1989:3	107,888.0	714.0	19,680.0	5,666.0	25,685.0	5,252.0	6,774.0	26,520.0	2,982.0	14,615.0
1989:4	108,101.0	720.0	19,672.0	5,682.0	25,695.0	5,279.0	6,776.0	26,651.0	2,982.0	14,644.0
1989:5	108,310.0	722.0	19,667.0	5,700.0	25,750.0	5,283.0	6,790.0	26,711.0	2,999.0	14,688.0
1989:6	108,607.0	715.0	19,650.0	5,716.0	25,781.0	5,283.0	6,808.0	26,931.0	2,995.0	14,728.0
1989:7	108,767.0	706.0	19,649.0	5,736.0	25,823.0	5,314.0	6,815.0	26,973.0	3,000.0	14,751.0
1989:8	108,887.0	729.0	19,644.0	5,618.0	25,877.0	5,321.0	6,836.0	27,058.0	2,999.0	14,805.0
1989:9	109,096.0	730.0	19,559.0	5,709.0	25,896.0	5,325.0	6,852.0	27,159.0	2,996.0	14,870.0
1989:10	109,171.0	731.0	19,537.0	5,729.0	25,957.0	5,335.0	6,851.0	27,188.0	2,984.0	14,859.0
1989:11	109,452.0	737.0	19,517.0	5,753.0	26,044.0	5,355.0	6,871.0	27,345.0	2,982.0	14,848.0
1989:12	109,570.0	739.0	19,489.0	5,834.0	26,029.0	5,304.0	6,885.0	27,419.0	2,974.0	14,897.0
1990:1	109,931.0	745.0	19,355.0	5,850.0	26,154.0	5,418.0	6,896.0	27,557.0	2,998.0	14,958.0
1990:2	110,304.0	749.0	19,452.0	5,863.0	26,124.0	5,482.0	6,914.0	27,706.0	3,006.0	14,992.0
1990:3	110,407.0	748.0	19,422.0	5,866.0	26,109.0	5,418.0	6,922.0	27,757.0	3,058.0	15,015.0

RESIDENTIAL CONSTRUCTION CONTRACTS: Western Region and United States

(Millions of Dollars)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1980	137.6	1,609.2	8,653.1	569.9	293.7	690.1	879.6	461.7	1,674.8	63,327.0
1981	161.6	1,569.2	7,492.5	377.3	225.5	737.5	677.7	578.9	1,386.8	59,911.0
1982	321.1	1,625.7	5,926.6	372.6	190.8	613.5	486.3	476.4	1,117.5	58,747.9
1983	535.1	2,900.6	11,180.9	365.7	314.5	918.6	708.0	788.1	1,617.6	90,742.3
1984	531.5	3,610.5	13,944.3	383.4	312.9	795.6	782.2	789.3	1,897.7	101,119.1
1985	433.3	3,703.5	15,278.1	408.2	313.9	807.3	718.5	732.3	1,809.9	108,380.3
1986	286.1	3,490.7	19,708.6	515.1	267.3	936.3	705.8	720.7	2,074.8	122,352.0
1987	160.5	2,819.1	19,372.9	572.5	254.5	1,069.1	785.7	633.4	2,140.8	119,426.5
1988	126.4	2,508.1	21,296.9	644.2	270.6	1,260.2	933.4	577.1	2,307.5	121,989.4
1989	128.8	2,148.4	22,229.5	849.0	339.9	1,938.6	1,253.7	562.6	2,589.8	117,653.4
1989:3	2.9	192.9	1,952.2	126.1	26.6	120.9	111.7	55.9	199.7	10,506.4
1989:4	5.9	206.2	1,934.6	46.7	25.7	240.3	101.0	47.1	191.7	10,998.8
1989:5	9.7	199.6	2,140.2	54.1	33.1	94.4	95.5	56.9	220.0	11,388.7
1989:6	36.8	217.5	2,345.6	139.9	33.0	142.9	115.5	50.9	217.0	11,568.2
1989:7	8.8	180.9	1,824.0	113.1	35.3	156.0	139.2	48.2	225.3	10,318.3
1989:8	14.6	199.4	2,266.0	71.2	39.2	202.2	198.5	56.6	233.5	11,553.8
1989:9	14.6	157.9	1,728.9	64.2	33.4	169.4	111.6	59.9	202.1	10,159.5
1989:10	16.7	157.6	1,876.0	55.4	33.9	140.2	114.1	54.8	309.3	10,517.2
1989:11	3.4	152.1	1,632.3	50.2	31.5	122.5	83.1	44.4	275.1	8,949.8
1989:12	1.9	138.9	1,685.7	52.3	20.6	140.1	64.7	35.8	242.3	7,262.4
1990:1	3.1	147.7	1,629.7	63.1	19.4	128.9	86.4	31.2	279.1	6,237.5
1990:2	2.2	145.0	1,425.3	46.6	27.9	91.6	95.5	31.5	272.1	7,240.3
1990:3	3.3	161.7	2,054.7	77.4	49.4	107.9	162.0	64.9	313.4	9,940.1

Data Note: Annual values are sums of monthly values.

NON-RESIDENTIAL CONSTRUCTION CONTRACTS: Western Region and United States

(Millions of Dollars)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1980	228.4	1,081.0	6,717.7	289.8	250.4	318.2	608.8	514.7	1,321.3	52,459.0
1981	385.4	980.2	7,194.1	291.6	177.6	413.2	587.0	451.0	1,323.4	59,402.0
1982	491.1	1,117.1	6,932.4	295.4	161.2	294.6	536.5	394.2	1,307.6	59,161.3
1983	718.8	1,065.3	8,195.2	178.1	144.7	322.4	376.2	452.5	1,218.1	64,804.2
1984	695.4	1,547.2	9,691.6	302.2	201.1	281.0	504.7	489.5	1,265.5	73,876.5
1985	594.7	1,891.1	10,440.3	278.2	261.0	430.4	602.0	506.2	1,760.2	82,596.0
1986	399.7	1,841.3	10,524.9	372.5	230.4	587.0	500.1	580.1	1,511.8	83,199.4
1987	263.2	1,933.5	11,574.6	417.2	208.1	619.4	636.4	435.0	1,990.4	92,720.4
1988	239.4	1,859.0	10,923.3	647.4	239.9	619.8	723.6	503.7	1,378.3	90,118.3
1989	149.4	1,677.2	12,093.0	793.8	192.3	820.3	658.7	423.2	1,413.6	90,678.4
1989:3	4.2	134.5	721.2	134.1	16.6	77.1	68.2	59.1	117.6	7,099.9
1989:4	15.6	109.4	866.0	3.5	16.0	88.5	50.2	25.4	87.2	6,509.8
1989:5	15.6	159.1	1,149.0	78.0	11.5	68.3	99.3	42.6	141.6	7,959.2
1989:6	26.6	133.4	1,232.6	68.1	24.6	54.6	54.1	45.1	120.0	8,496.4
1989:7	18.5	139.2	1,179.5	51.0	20.4	68.5	83.7	33.8	104.8	7,975.8
1989:8	18.6	200.4	1,108.6	47.1	21.3	51.6	55.1	45.7	243.3	8,625.6
1989:9	20.4	198.0	1,277.2	71.1	11.2	105.1	52.3	39.3	103.7	8,786.1
1989:10	20.1	97.5	1,042.4	70.7	19.5	92.4	47.4	38.8	136.8	8,532.9
1989:11	4.5	99.3	967.7	94.8	15.3	49.4	27.5	19.6	141.7	6,777.9
1989:12	0.7	98.8	943.8	60.0	15.3	61.4	29.3	22.3	95.7	6,167.0
1990:1	16.7	120.7	905.9	77.9	19.3	91.4	53.3	32.3	118.6	7,578.6
1990:2	7.8	99.8	727.6	24.4	17.4	140.6	73.1	59.2	108.5	4,821.0
1990:3	38.8	158.3	1,309.8	17.3	10.5	34.8	79.6	49.6	128.3	7,085.8

Data Note: Annual values are sums of monthly values.

NON-BUILDING CONSTRUCTION CONTRACTS: Western Region and United States

(Millions of Dollars)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON	UNITED STATES
1980	232.7	497.4	2,263.6	125.2	111.8	147.1	367.2	138.6	1,826.3	32,696.0
1981	441.0	482.7	2,379.1	144.1	141.3	123.5	360.8	131.5	677.9	32,458.0
1982	428.9	1,077.5	2,322.5	192.5	138.6	196.3	342.0	2,367.0	970.1	37,143.2
1983	375.3	1,235.3	2,676.0	146.4	121.5	198.1	397.2	2,532.4	734.3	37,702.2
1984	445.1	689.6	2,529.3	171.1	133.1	211.6	555.2	325.5	738.8	35,829.0
1985	458.5	891.2	3,742.5	130.7	162.0	249.3	292.7	342.8	783.5	40,423.9
1986	399.0	757.0	3,998.5	222.7	156.4	225.8	310.5	241.3	942.2	41,249.8
1987	363.0	832.6	4,145.9	179.2	179.8	245.7	421.1	367.1	931.4	45,798.7
1988	414.7	766.5	4,503.3	360.9	334.8	225.9	407.2	380.1	983.3	47,168.2
1989	322.7	1,083.9	4,544.3	312.8	205.5	300.2	427.0	323.0	953.6	46,035.7
1989:3	36.5	51.1	389.7	19.7	5.0	37.9	22.7	30.8	66.7	4,338.7
1989:4	12.8	138.0	410.6	31.2	6.2	43.9	37.8	13.7	46.9	4,216.4
1989:5	34.9	82.8	506.4	36.9	11.3	35.9	57.9	60.4	71.9	4,448.5
1989:6	67.5	89.7	380.4	11.6	34.7	26.9	62.6	62.3	179.6	4,585.5
1989:7	18.8	125.4	449.1	51.3	2.5	20.8	52.3	27.4	75.6	4,035.7
1989:8	31.4	33.2	500.0	6.7	22.3	34.0	19.5	27.0	97.6	3,949.1
1989:9	37.2	105.2	375.8	19.4	22.9	10.7	33.8	35.1	105.1	4,426.3
1989:10	4.8	140.1	311.2	23.3	15.5	55.6	41.1	18.3	45.5	3,618.6
1989:11	12.8	103.1	546.6	31.4	39.1	3.8	20.3	30.0	156.0	3,409.3
1989:12	10.0	59.9	233.4	20.3	21.0	12.4	20.8	2.6	30.7	3,199.9
1990:1	14.3	182.9	262.1	43.3	1.4	20.2	25.7	25.0	73.4	2,654.7
1990:2	23.0	28.8	272.6	23.7	14.0	7.8	25.4	14.9	45.9	2,801.2
1990:3	11.4	63.3	345.5	26.6	11.9	19.0	32.1	22.0	115.9	3,893.7

Data Note: Annual values are sums of monthly values.

RESIDENTIAL BUILDING PERMITS: Western Region

(Number of Units)

Year / Month	ALASKA	ARIZONA	CALIFORNIA	HAWAII	IDAHO	NEVADA	OREGON	UTAH	WASHINGTON
1980	1,869.0	36,428.0	143,176.0	9,348.0	5,380.0	12,114.0	20,008.0	10,455.0	32,522.0
1981	3,040.0	35,948.0	113,248.0	7,252.0	3,514.0	11,218.0	14,125.0	7,410.0	26,416.0
1982	6,223.0	36,322.0	85,464.0	6,622.0	2,389.0	9,053.0	7,332.0	6,838.0	17,320.0
1983	12,063.0	63,902.0	171,455.0	5,735.0	4,247.0	16,359.0	8,873.0	13,511.0	27,891.0
1984	6,384.0	77,107.0	222,246.0	5,493.0	4,070.0	13,108.0	8,571.0	18,607.0	30,511.0
1985	4,154.0	71,668.0	266,130.0	6,412.0	4,190.0	13,128.0	11,019.0	14,672.0	34,293.0
1986	1,422.0	60,427.0	307,388.0	6,526.0	3,977.0	15,809.0	10,500.0	14,004.0	37,037.0
1987	798.0	39,635.0	243,087.0	6,261.0	3,235.0	15,877.0	11,750.0	7,760.0	37,142.0
1988	808.0	32,528.0	248,324.0	7,084.0	3,198.0	30,656.0	13,904.0	6,057.0	43,372.0
1989	648.0	23,315.0	235,877.0	9,693.0	4,763.0	29,143.0	22,374.0	6,134.0	45,596.0
1989:3	45.0	2,341.0	21,154.0	597.0	356.0	2,473.0	1,223.0	556.0	4,092.0
1989:4	67.0	1,992.0	20,885.0	696.0	378.0	2,075.0	1,210.0	556.0	3,455.0
1989:5	70.0	2,204.0	22,996.0	1,303.0	499.0	2,263.0	2,895.0	594.0	4,106.0
1989:6	103.0	2,189.0	22,458.0	1,233.0	559.0	4,051.0	3,206.0	625.0	4,243.0
1989:7	57.0	2,001.0	20,880.0	760.0	714.0	2,104.0	1,457.0	553.0	4,566.0
1989:8	75.0	2,472.0	19,348.0	1,007.0	400.0	2,445.0	1,889.0	749.0	4,493.0
1989:9	60.0	1,959.0	17,140.0	865.0	472.0	2,092.0	2,421.0	637.0	4,419.0
1989:10	79.0	1,857.0	21,022.0	909.0	388.0	1,799.0	1,781.0	575.0	4,467.0
1989:11	28.0	1,489.0	16,277.0	793.0	412.0	2,564.0	1,760.0	406.0	3,148.0
1989:12	15.0	1,438.0	21,109.0	285.0	331.0	2,368.0	1,579.0	291.0	3,600.0
1990:1	19.0	2,679.0	17,626.0	694.0	219.0	2,650.0	2,024.0	308.0	3,375.0
1990:2	22.0	1,664.0	14,907.0	533.0	269.0	1,973.0	1,014.0	397.0	3,813.0
1990:3	42.0	1,943.0	18,785.0	589.0	517.0	2,752.0	2,212.0	697.0	5,261.0

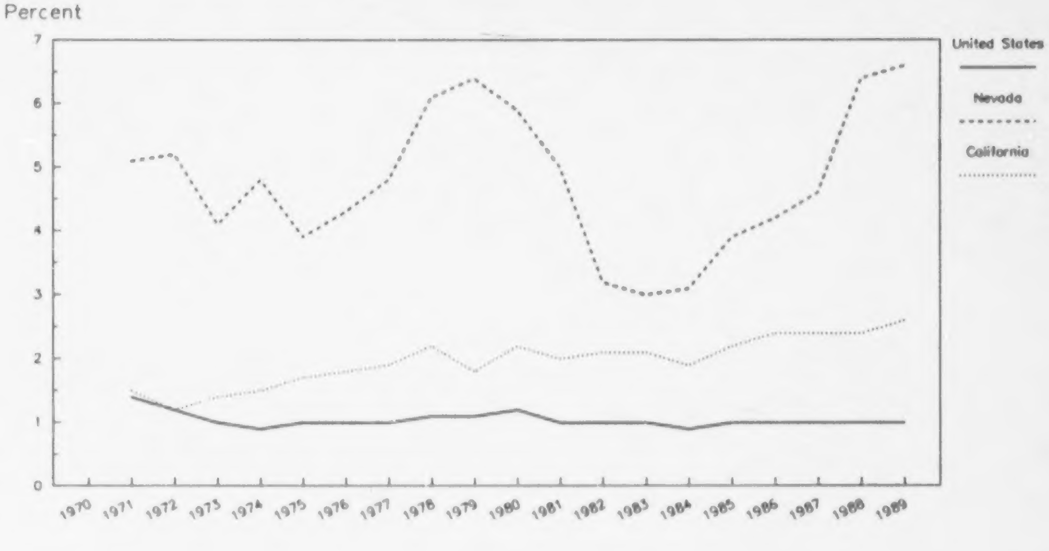
Data Note: Annual values are sums of monthly values.

STATE OF NEVADA

POPULATION

United States, Nevada and California

Percent Change from Previous Year



POPULATION AND COMPONENTS: Nevada

Year	POPULATION	BIRTHS (a)	DEATHS (b)	NATURAL INCREASE (a-b)	NET MIGRATION	BIRTH RATE (per 1,000)	DEATH RATE (per 1,000)
1970	494,990	9,572	3,856	5,716	8,968	19.3	7.8
1971	520,000	9,650	3,980	5,670	19,340	18.6	7.7
1972	546,800	9,033	4,090	4,943	21,857	16.5	7.5
1973	569,200	8,600	4,624	3,976	18,424	15.1	8.1
1974	596,700	8,966	4,338	4,628	22,872	15.0	7.3
1975	620,000	9,056	4,479	4,577	18,723	14.6	7.2
1976	646,800	9,659	4,578	5,081	21,719	14.9	7.1
1977	678,100	10,519	5,622	4,897	26,403	15.5	8.3
1978	719,300	11,304	5,873	5,431	35,769	15.7	8.2
1979	765,300	12,756	6,235	6,521	39,479	16.7	8.2
1980	810,502	13,626	6,859	6,767	38,435	16.8	8.5
1981	851,150	14,439	6,819	7,620	33,028	17.0	8.0
1982	878,260	14,935	7,278	7,657	19,453	17.0	8.3
1983	904,660	14,686	7,317	7,369	19,031	16.2	8.1
1984	933,010	15,263	7,644	7,619	20,731	16.4	8.2
1985	969,450	15,745	8,313	7,432	29,008	16.2	8.6
1986	1,010,280	16,277	8,421	7,856	32,974	16.1	8.3
1987	1,057,030	17,023	8,941	8,082	38,668	16.1	8.5
1988	1,124,590	18,415	9,464	8,951	58,609	16.4	8.4
1989	1,198,450	19,688	9,592	10,096	63,764	16.4	8.0

Data Note: All 1989 data are preliminary except population.

POPULATION COMPARISON

	UNITED STATES		NEVADA		CALIFORNIA		CLARK COUNTY		WASHOE COUNTY	
Year	Residents	% Change	Residents	% Change	Residents	% Change	Residents	% Change	Residents	% Change
1970	203,984,000	n/a	494,990	n/a	20,039,000	n/a	277,230	n/a	122,574	-
1971	206,827,000	1.4	520,000	5.1	20,346,000	1.5	293,000	5.7	128,600	4.9
1972	209,284,000	1.2	546,800	5.2	20,585,000	1.2	307,400	4.9	135,400	5.3
1973	211,357,000	1.0	569,200	4.1	20,869,000	1.4	319,400	3.9	141,000	4.1
1974	213,342,000	0.9	596,700	4.8	21,174,000	1.5	336,900	5.5	147,400	4.5
1975	215,465,000	1.0	620,000	3.9	21,538,000	1.7	351,300	4.3	152,200	3.3
1976	217,563,000	1.0	646,800	4.3	21,936,000	1.8	369,500	5.2	158,700	4.3
1977	219,760,000	1.0	678,100	4.8	22,352,000	1.9	390,000	5.5	167,800	5.7
1978	222,095,000	1.1	719,300	6.1	22,836,000	2.2	412,900	5.9	177,600	5.8
1979	224,567,000	1.1	765,300	6.4	23,257,000	1.8	441,400	6.9	187,200	5.4
1980	227,255,000	1.2	810,502	5.9	23,779,800	2.2	469,362	6.3	195,222	4.3
1931	229,637,000	1.0	851,150	5.0	24,267,000	2.0	494,460	5.3	201,620	3.3
1982	231,996,000	1.0	878,260	3.2	24,786,000	2.1	511,930	3.5	205,040	1.7
1983	234,284,000	1.0	904,660	3.0	25,309,000	2.1	531,210	3.8	210,860	2.8
1984	236,477,000	0.9	933,010	3.1	25,780,000	1.9	546,580	2.9	218,130	3.4
1985	238,736,000	1.0	969,450	3.9	26,358,000	2.2	572,140	4.7	224,340	2.8
1986	241,096,000	1.0	1,010,280	4.2	26,999,000	2.4	600,160	4.9	231,970	3.4
1987	243,427,000	1.0	1,057,030	4.6	27,655,000	2.4	631,920	5.3	238,010	2.6
1988	245,785,000	1.0	1,124,590	6.4	28,323,000	2.4	681,440	7.8	244,490	2.7
1989	248,239,000	1.0	1,198,450	6.6	29,063,000	2.6	733,180	7.6	251,130	2.7

LABOR FORCE COMPONENTS AND UNEMPLOYMENT RATE: Nevada

	CIVILIAN LABOR FORCE		EMPLOYMENT		UNEMPLOYMENT		UNEMPLOYMENT RATE		WAGES & SALARIES	
Year / Month		SA		SA		SA		SA	($ 000)	SA ($ 000)
1980	429,992		402,992		27,000		6.3		1,408,509	
1981	463,025		430,017		33,008		7.1		1,592,085	
1982	483,000		433,992		49,008		10.2		1,638,885	
1983	486,008		438,000		48,008		9.9		1,700,372	
1984	499,992		461,000		38,992		7.8		1,859,592	
1985	520,992		478,992		42,000		8.1		2,013,998	
1986	532,008		500,008		32,000		6.0		2,182,515	
1987	557,008		522,008		35,000		6.3		2,430,662	
1988	584,000		553,992		30,000		5.1		2,753,065	
1989	602,000		572,000		30,000		5.0		3,092,858	
1989:3	598,700	566,091	566,500	531,521	32,300	34,592	5.4	5.1	2,834,866 *	2,899,898 *
1989:4	600,900	568,153	572,300	536,730	28,600	31,433	4.8	4.7		
1989:5	599,700	573,165	571,700	543,741	28,000	32,949	4.7	4.9		
1989:6	598,600	562,249	567,900	529,178	30,700	33,218	5.1	5.4	2,984,950	3,014,128
1989:7	602,600	562,474	572,000	528,451	30,500	33,704	5.1	5.2		
1989:8	599,900	568,812	571,700	533,037	28,100	35,205	4.7	5.0		
1989:9	602,000	571,759	572,100	534,876	29,900	37,086	5.0	5.6	3,122,707	3,114,967
1989:10	613,700	576,116	584,700	541,915	29,100	33,659	4.7	5.1		
1989:11	613,300	581,953	585,000	548,674	28,400	32,398	4.6	4.8		
1989:12	613,600	585,363	586,700	552,334	26,900	32,067	4.4	4.0	3,428,909	3,326,453
1990:1	608,400	587,450	577,700	556,386	30,700	30,208	5.1	4.4		
1990:2	614,700	588,101	584,400	559,701	30,300	27,982	4.9	4.4		
1990:3	618,700	590,614	588,200	565,363	30,500	25,023	4.9	4.6	n / a	n / a

* Figures available on a quarterly basis.

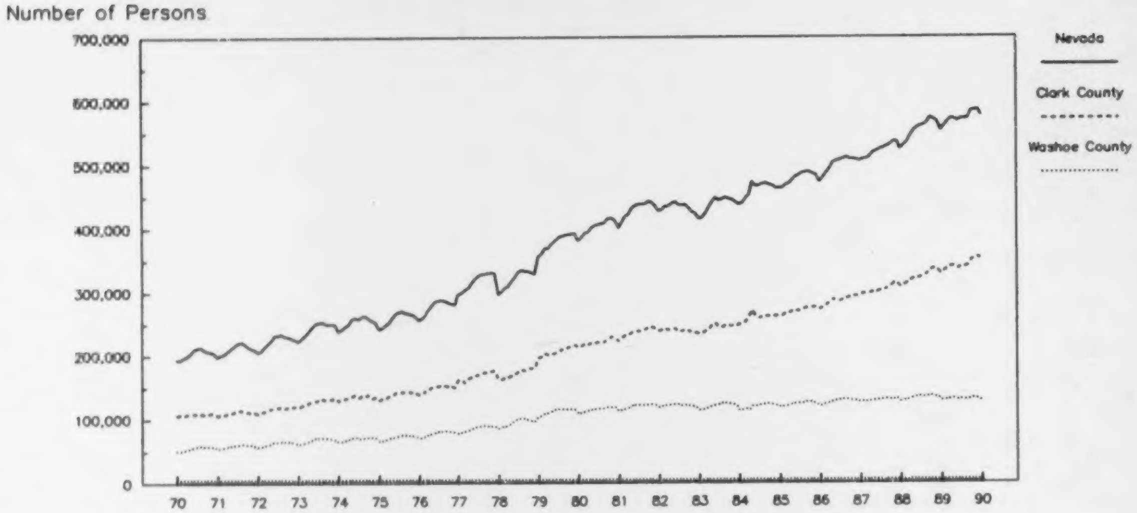
INDUSTRIAL EMPLOYMENT: Nevada

Year / Month	Mining	Manufacturing	Transportation	Public Utilities	TRADE		
					Wholesale	Retail	TOTAL
1980	6,217	19,158	12,883	11,175	13,167	67,142	80,308
1981	7,850	20,075	13,233	11,875	14,075	69,542	83,617
1982	6,617	18,767	12,950	11,967	13,708	66,175	79,883
1983	5,842	19,167	12,950	11,558	13,658	66,558	80,217
1984	6,575	21,042	13,525	11,392	14,742	71,150	85,892
1985	6,075	21,958	13,983	11,283	15,842	75,033	90,875
1986	6,308	22,258	15,150	11,392	16,708	78,025	94,733
1987	8,133	23,258	16,258	11,533	18,817	83,425	102,242
1988	11,050	24,908	17,067	11,975	20,417	89,342	109,758
1989	13,567	25,442	18,167	12,400	22,667	97,042	119,717
1989:3	12,500	25,200	17,600	12,200	22,000	92,900	115,000
1989:4	13,000	25,100	17,900	12,300	22,200	93,500	115,700
1989:5	13,400	25,500	18,100	12,300	22,500	95,000	117,500
1989:6	14,000	25,600	18,100	12,500	22,900	96,900	119,800
1989:7	14,400	25,600	18,400	12,500	23,100	98,400	121,500
1989:8	14,300	25,800	18,700	12,000	23,000	99,200	122,200
1989:9	14,100	25,700	18,700	12,600	23,100	99,900	123,000
1989:10	14,200	25,600	18,600	12,800	23,300	100,200	123,500
1989:11	14,300	25,700	18,700	12,800	23,400	101,700	125,100
1989:12	14,400	25,700	18,900	12,700	23,300	103,300	126,600
1990:1	14,300	25,400	18,500	12,500	23,300	99,800	123,100
1990:2	14,400	25,700	18,600	12,500	23,300	99,700	123,000
1990:3	14,600	25,900	18,900	12,700	23,600	100,100	123,700

Year / Month	SERVICE					GOVERNMENT		
	Construction	F.I.R.E.	Hotels & Gaming	Other	TOTAL	Federal	State and Local	TOTAL
1980	26,192	17,933	114,958	54,200	169,158	10,358	46,642	57,000
1981	25,375	18,275	114,792	58,942	173,733	9,500	47,592	57,092
1982	19,950	17,942	114,525	60,300	174,825	9,717	48,491	58,208
1983	19,350	18,508	114,750	62,475	177,225	9,800	48,208	58,008
1984	21,808	19,950	120,058	66,792	186,850	9,983	48,950	58,933
1985	23,925	21,400	125,483	70,942	196,425	10,450	50,067	60,517
1986	27,733	22,383	128,925	77,658	206,583	10,883	50,667	61,550
1987	30,050	23,400	137,667	83,550	221,217	11,292	52,791	64,083
1988	36,292	24,483	145,283	89,783	235,067	11,383	55,575	66,958
1989	45,608	25,533	151,658	99,417	251,075	11,733	59,025	70,758
1989:3	41,500	25,000	145,100	96,600	241,700	11,600	59,800	71,400
1989:4	43,000	25,000	149,600	96,600	246,200	11,700	59,800	71,500
1989:5	44,600	25,500	150,700	98,400	249,100	11,700	60,200	71,900
1989:6	46,500	25,700	154,000	100,000	254,000	11,900	57,700	69,600
1989:7	47,300	26,000	156,200	100,300	256,500	11,900	53,800	65,700
1989:8	49,100	26,000	156,200	103,100	259,300	12,000	54,300	66,300
1989:9	49,900	26,100	155,600	102,800	258,400	11,800	59,300	71,100
1989:10	50,300	26,000	155,000	102,000	257,000	11,800	62,000	73,800
1989:11	49,900	26,000	155,600	103,300	258,900	11,700	62,400	74,100
1989:12	49,100	25,900	156,100	102,600	258,700	11,700	62,600	74,300
1990:1	47,400	26,100	157,400	103,300	260,700	11,600	61,600	73,200
1990:2	47,100	26,300	157,500	103,100	260,600	11,600	63,100	74,700
1990:3	48,000	26,500	158,500	103,800	262,300	11,700	63,700	75,400

TOTAL CIVILIAN EMPLOYMENT

Nevada, Clark County and Washoe County



TAXABLE SALES, GAMING REVENUES, PERSONAL INCOME: Nevada

Year / Quarter	TAXABLE SALES ($ 000)	TAXABLE SALES % Change	GAMING REVENUES ($000)	GAMING REVENUES % Change	PERSONAL INCOME ($ M)	PERSONAL INCOME % Change
1980	6,382,474	3.5	2,383,418	12.4	9,250.0	15.4
1981	6,741,716	5.6	2,533,389	6.3	10,458.8	13.1
1982	6,539,310	-3.0	2,627,430	3.7	10,956.5	4.8
1983	6,853,869	4.8	2,846,509	8.3	11,599.8	5.9
1984	7,624,718	11.2	3,075,126	8.0	12,678.8	9.3
1985	8,384,795	10.0	3,314,433	7.8	13,801.5	8.9
1986	9,163,503	9.3	3,482,097	5.1	14,931.8	8.2
1987	10,224,237	11.6	3,925,147	12.7	16,473.3	10.3
1988	11,768,439	13.1	4,267,390	8.0	18,475.5	12.2
1989	13,553,435	13.2	4,583,829	7.4	20,911.5	13.2
1988:3	3,059,079	15.5	1,131,090	8.9	18,763.0	3.6
1988:4	3,169,088	14.7	1,050,397	10.6	19,300.0	2.9
1989:1	3,137,524	20.6	1,098,075	6.1	20,052.0	3.9
1989:2	3,299,902	12.3	1,153,968	9.8	20,630.0	2.9
1989:3	3,422,942	11.9	1,213,154	7.3	21,132.0	2.4
1989:4	3,693,067	16.5	1,118,632	6.5	21,832.0	3.3
1990:1			1,274,030	16.0		

Data Note: Annual values for Taxable Sales and Gaming Revenues are sums of quarterly values.

AVERAGE WEEKLY HOURS: Nevada

Year / Month	Mining	Construction	Manufacturing	Durable Goods	Non-Durable Goods	Public Utilities	Transportation	TRADE *		
								Wholesale	Retail	TOTAL
1980	40.2	35.1	38.2	39.3	35.9	40.7				33.8
1981	41.3	35.8	38.6	39.3	37.0	40.2				34.0
1982	41.2	34.9	37.3	37.8	36.6	39.8				34.1
1983	43.0	35.4	38.8	39.0	38.3	40.1				34.2
1984	42.8	35.9	39.8	40.1	39.2	40.7				34.1
1985	42.9	36.0	41.4	40.8	39.5	40.9				34.2
1986	42.8	37.2	40.2	41.1	38.4	40.4				33.8
1987	42.8	36.0	40.3	41.5	38.3	40.3				34.4
1988	43.9	36.9	39.7	40.9	37.9	40.6				34.7
1989	43.7	38.4	40.9	42.4	38.3	41.3	33.2	40.6	31.6	36.1
1989:3	43.0	37.3	40.9	43.2	37.0	40.9	32.0	40.4	30.1	35.3
1989:4	44.6	38.1	41.1	42.3	38.9	41.8	33.4	40.7	31.7	36.2
1989:5	42.6	37.9	41.9	43.5	39.1	40.9	33.4	40.8	31.7	36.3
1989:6	43.5	38.1	41.4	42.9	38.8	40.7	33.9	41.1	32.3	36.7
1989:7	44.7	39.6	40.3	41.6	38.1	40.8	34.6	40.6	33.3	37.0
1989:8	44.4	39.3	40.8	41.9	38.9	39.8	34.1	41.1	32.5	36.8
1989:9	44.1	39.5	40.7	41.6	39.1	40.8	33.5	41.0	31.9	36.5
1989:10	45.9	38.8	40.6	42.1	38.0	42.0	33.5	40.4	32.0	36.2
1989:11	44.1	39.2	41.2	43.0	38.1	43.6	33.1	40.6	31.5	36.1
1989:12	41.9	40.2	41.3	42.9	38.6	42.6	33.6	40.3	32.2	36.3
1990:1	43.4	36.9	41.1	42.8	38.1	43.0	33.1	40.2	31.5	35.9
1990:2	42.1	37.5	39.7	40.6	38.2	42.4	32.6	39.8	30.9	35.4
1990:3	42.9	38.5	40.8	42.3	38.2	42.5	32.9	40.4	31.1	35.8

* Excluding Food & Drink

AVERAGE HOURLY EARNINGS: Nevada

Year / Month	Mining	Construction	Manufacturing	Durable Goods	Non-Durable Goods	Public Utilities	Transportation	TRADE *		
								Wholesale	Retail	TOTAL
1980	9.40	14.09	7.72	8.00	7.28	8.57				6.74
1981	10.69	15.92	8.42	8.87	7.52	9.78				7.10
1982	11.53	17.03	8.80	9.26	7.88	10.80				7.58
1983	12.27	16.99	9.02	9.43	8.21	11.76				7.82
1984	12.87	16.87	9.12	9.49	8.37	12.41				8.09
1985	13.24	16.19	9.15	9.41	8.62	13.00				8.37
1986	14.03	16.19	9.36	9.64	8.79	13.80				8.48
1987	14.42	16.31	9.75	10.00	9.30	14.18				8.82
1988	14.56	16.21	10.08	10.28	9.71	14.63				9.12
1989	15.57	16.74	10.33	10.64	9.74	15.26	8.44	10.96	7.71	9.34
1989:3	15.82	16.23	10.12	10.23	9.89	14.99	8.30	10.76	7.54	9.15
1989:4	15.84	16.46	10.22	10.46	9.79	15.19	8.24	10.93	7.44	9.19
1989:5	15.42	16.43	10.23	10.54	9.66	15.35	8.23	10.85	7.47	9.16
1989:6	15.24	16.73	10.32	10.61	9.77	15.32	8.40	10.94	7.66	9.30
1989:7	15.71	17.30	10.35	10.73	9.63	15.39	8.42	11.08	7.69	9.39
1989:8	15.50	16.97	10.29	10.60	9.70	15.47	8.41	10.95	7.70	9.32
1989:9	15.57	17.09	10.35	10.67	9.78	15.33	8.58	11.13	7.85	9.49
1989:10	15.84	17.28	10.54	10.96	9.73	15.45	8.62	11.18	7.90	9.54
1989:11	15.56	16.99	10.54	10.95	9.75	15.30	8.65	11.02	7.98	9.50
1989:12	15.40	17.09	10.64	10.99	9.96	15.27	8.67	11.14	8.00	9.57
1990:1	15.77	16.62	11.09	11.19	10.90	15.66	8.70	11.03	8.03	9.53
1990:2	15.70	16.77	11.00	11.08	10.86	15.31	8.79	11.27	8.08	9.68
1990:3	15.86	17.15	10.90	10.97	10.77	15.21	9.03	11.14	8.42	9.78

* Excluding Food & Drink

CONSTRUCTION - Residential Permits: NEVADA

Year / Month	UNITS		VALUATIONS		
	TOTAL	Single Family	TOTAL ($ 000)	Single Family ($ 000)	Non-Residential ($ Millions)
1980	11,752	6,275	457,871	320,138	511.4
1981	10,267	5,793	370,555	262,018	443.8
1982	8,138	4,364	293,128	210,192	257.9
1983	15,982	8,426	572,296	396,795	456.9
1984	13,749	6,698	89,447	393,717	442.0
1985	14,004	7,385	593,602	414,092	496.4
1986	15,655	9,940	758,242	593,747	592.8
1987	16,345	10,178	785,850	611,136	540.5
1988	30,656	12,833	1,225,258	726,323	646.5
1989	29,143	16,129	1,559,177	1,130,491	592.3
1989:3	2,473	1,081	111,604	67,494	178.7
1989:4	2,075	1,282	116,549	90,689	99.5
1989:5	2,263	1,161	112,385	75,226	64.7
1989:6	4,051	1,360	174,849	90,027	62.0
1989:7	2,104	1,345	121,825	98,118	50.6
1989:8	2,445	1,661	147,689	115,257	115.1
1989:9	2,092	1,319	119,916	98,148	71.2
1989:10	1,799	1,205	105,803	90,818	47.8
1989:11	2,564	1,604	176,746	131,498	87.4
1989:12	2,368	1,389	152,037	120,197	53.8
1990:1	2,650	1,061	171,880	96,019	78.4
1990:2	1,973	1,135	109,609	82,115	n/a
1990:3	2,752	1,311	186,048	121,632	n/a

Data Note: Annual values are sums of monthly values.

HIGHWAY TRAFFIC COUNT - (Both directions of travel)

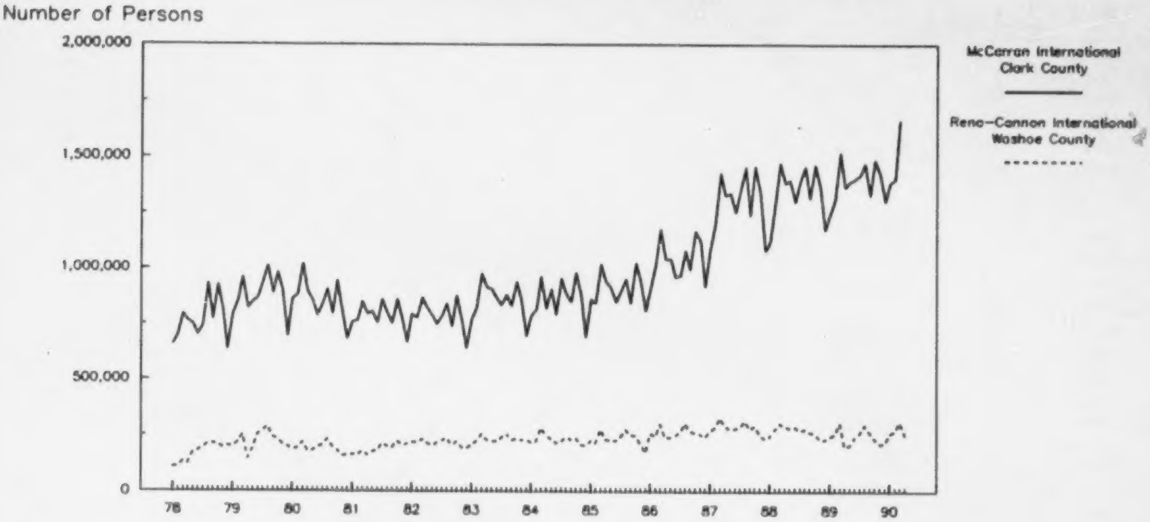
Year / Month	VEHICLES PER DAY								
	I-15 at Jean CA Border	I-15 at Apex East of Las Vegas	US 50 South Tahoe CA Border	I-80 at Wells East of Elko	US 93 at Contact Idaho Border	US 95 at Orovada OR Border	I-80 at Verdi West of Reno	US 395 at Bordertown North of Reno	US 6/50/90 at Ely Utah Border
1980	4,833,359	2,526,281	11,256,666	1,077,094	433,133	395,293	5,827,470	2,040,682	317,630
1981	5,166,067	2,846,804	11,339,881	1,180,627	465,426	408,276	6,033,966	2,121,405	319,289
1982	5,238,269	2,958,128	10,869,896	1,095,956	441,294	381,522	5,820,926	2,022,780	281,599
1983	5,452,274	2,900,563	10,733,350	1,093,691	469,513	388,955	6,148,455	2,156,360	258,850
1984	5,727,717	2,981,679	11,631,651	1,168,159	489,210	400,497	6,498,795	2,291,324	290,947
1985	5,918,699	3,144,547	11,735,774	1,218,786	476,326	388,196	6,695,701	2,375,479	272,967
1986	6,219,637	3,241,187	12,147,053	1,285,330	494,739	399,074	6,979,696	2,424,476	265,347
1987	6,598,336	3,593,780	12,463,463	1,407,533	531,335	435,601	7,438,645	2,558,512	291,228
1988	7,130,132	3,850,896	12,637,785	1,578,468	583,121	474,263	7,956,844	2,617,350	311,181
1989	7,921,381	4,190,977	12,807,332	1,653,364	612,362	473,764	7,716,028	2,661,320	334,217
1989:3	642,397	341,544	1,046,660	111,179	47,567	37,338	568,082	195,123	20,146
1989:4	623,684	339,214	941,669	119,487	46,678	37,027	608,170	213,930	23,158
1989:5	690,771	356,260	1,045,489	143,073	50,945	42,010	666,275	237,682	31,371
1989:6	695,222	406,830	1,161,093	179,326	62,790	45,367	717,753	258,748	37,412
1989:7	782,738	436,000	1,357,793	192,140	70,781	48,481	822,678	287,617	41,589
1989:8	770,397	429,433	1,353,272	205,492	67,784	49,633	830,605	286,475	40,775
1989:9	690,416	359,328	1,146,251	168,205	56,648	44,036	733,676	262,213	34,506
1989:10	631,510	340,613	997,325	145,738	53,574	43,639	618,723	234,664	32,686
1989:11	659,682	328,872	896,243	116,412	46,543	39,790	588,955	201,189	24,652
1989:12	700,063	333,576	1,020,721	103,840	42,923	34,724	599,069	201,486	19,868
1990:1	596,724	287,568	959,129	93,726	36,774	28,722	506,607	153,470	17,703
1990:2	557,625	281,081	889,368	84,504	35,220	27,579	449,594	143,180	16,066
1990:3	672,279	354,532	1,053,012	108,506	48,741	38,412	587,256	180,633	23,209

Data Note: Annual values are sums of monthly values.

AIRPORT PASSENGER COUNT

Enplaned and Deplaned Passengers

Passengers per Month



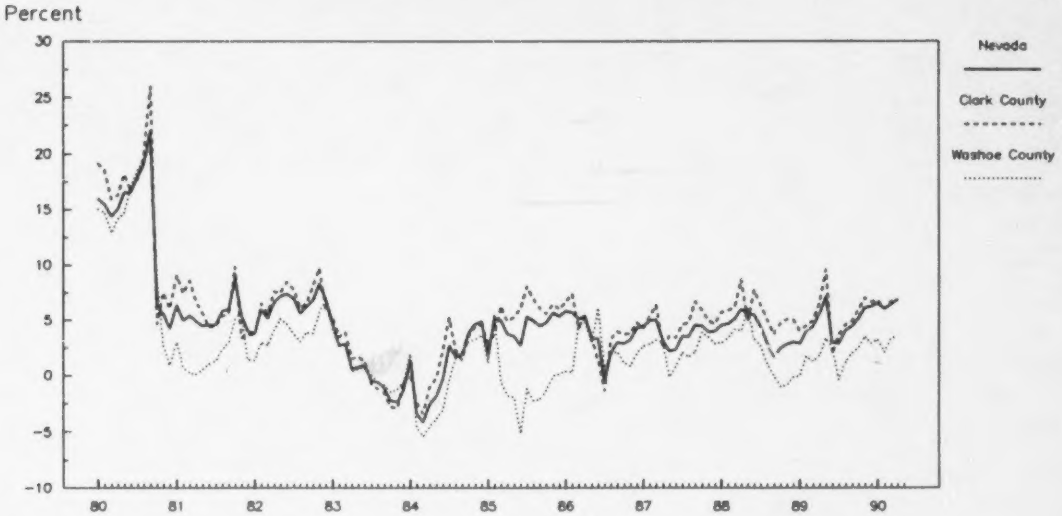
AIRPORT PASSENGER COUNT

(Total Enplaned and Deplaned Passengers)

Year / Month	McCarran International	% Change	Reno-Cannon International	% Change
1980	10,302,106		2,523,875	
1981	9,469,727	-8.1	2,500,592	-0.9
1982	9,438,646	-0.3	2,597,811	3.9
1983	10,312,842	9.3	2,794,462	7.6
1984	10,141,809	-1.7	2,828,742	1.2
1985	10,924,047	7.7	2,834,673	0.2
1986	12,428,748	13.8	3,170,619	11.9
1987	15,582,302	25.4	3,422,239	7.9
1988	16,231,199	4.2	3,257,248	-4.8
1989	16,683,634	2.8	2,966,441	-8.9
1989:3	1,520,828	3.2	307,261	0.4
1989:4	1,366,003	-1.2	202,207	-31.1
1989:5	1,391,748	-0.3	210,707	-25.9
1989:6	1,402,208	7.8	242,835	-16.5
1989:7	1,420,211	1.4	263,998	-3.8
1989:8	1,472,182	5.2	297,670	6.2
1989:9	1,329,592	-8.8	267,688	0.1
1989:10	1,489,024	13.0	238,803	-8.7
1989:11	1,426,608	-2.5	214,038	-8.9
1989:12	1,304,529	10.9	218,518	-5.9
1990:1	1,383,442	4.6	261,565	5.7
1990:2	1,403,369	17.6	271,226	6.2
1990:3	1,663,363	12.4	314,523	2.4

Data Note: Annual values are sums of monthly values.

METROPOLITAN AREAS



TOTAL CIVILIAN EMPLOYMENT

Nevada, Clark County and Washoe County

Percent Change from Year-Ago-Month

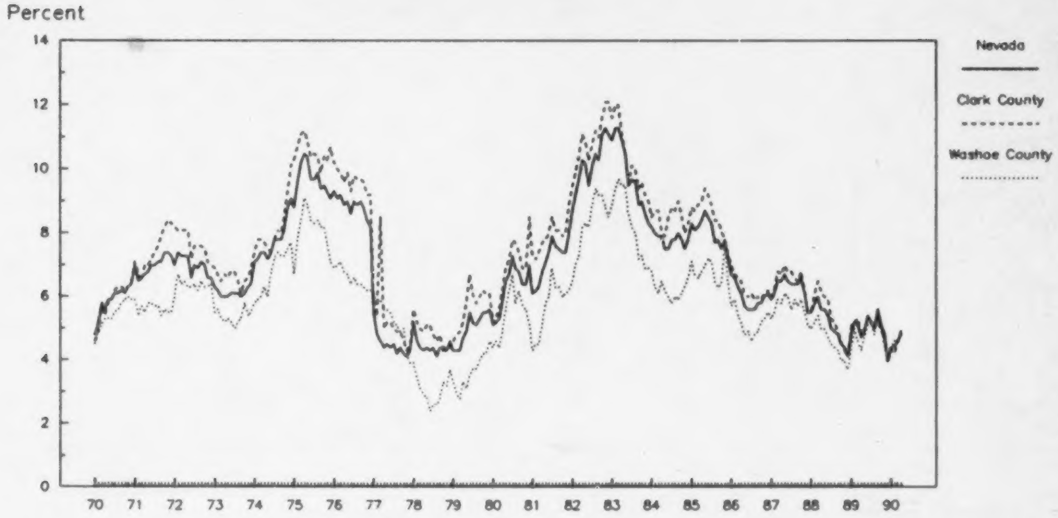
LABOR FORCE COMPONENTS and UNEMPLOYMENT RATE: Clark County

Year / Month	CIVILIAN LABOR FORCE	SA	EMPLOYMENT	SA	UNEMPLOYMENT	SA	UNEMPLOYMENT RATE	SA	WAGES & SALARIES ($ 000)	SA ($ 000)
1980	237,708		221,492		16,217		6.8		3,060,333	
1981	257,767		237,325		20,442		7.9		3,459,795	
1982	269,317		239,958		29,358		10.9		3,555,355	
1983	272,067		244,000		28,067		10.3		3,748,609	
1984	284,450		260,325		24,125		8.5		4,061,442	
1985	296,275		270,900		25,375		8.6		4,416,837	
1986	305,392		286,267		19,125		6.3		4,854,194	
1987	324,617		303,575		21,042		6.5		5,484,126	
1988	342,025		323,642		18,383		5.4		6,236,953	
1989	359,342		341,525		17,825		5.0		7,182,865	
1989:3	356,300	329,188	337,300	307,540	19,000	21,770	5.3	5.3	1,625,521 •	1,634,512 •
1989:4	358,200	331,357	341,100	311,778	17,200	19,513	4.8	4.9		
1989:5	357,600	336,822	340,700	317,524	16,900	19,870	4.7	5.0		
1989:6	355,800	325,202	336,900	304,051	18,900	20,772	5.3	5.3	1,721,961	1,736,393
1989:7	357,600	329,548	338,700	309,751	18,900	19,665	5.3	5.2		
1989:8	357,600	332,663	340,100	311,801	17,500	20,747	4.9	5.0		
1989:9	359,500	335,193	341,400	313,961	18,100	22,140	5.0	5.3	1,799,334	1,821,656
1989:10	368,800	338,790	351,200	318,195	17,600	20,480	4.8	4.9		
1989:11	369,600	341,985	352,900	322,230	16,700	19,551	4.5	4.7		
1989:12	371,000	342,659	355,500	322,698	15,500	19,673	4.2	3.9	2,036,050	1,968,982
1990:1	368,000	342,740	351,300	323,591	16,700	18,848	4.5	4.3		
1990:2	371,000	342,293	354,800	324,199	16,200	17,877	4.4	4.2		
1990:3	374,100	344,157	356,700	328,278	17,300	16,140	4.6	4.6	n/a	n/a

UNEMPLOYMENT RATES

Nevada, Clark County, and Washoe County, SA

Unemployment as a Percent of Labor Force



LABOR FORCE COMPONENTS and UNEMPLOYMENT RATE: Washoe County

Year / Mont	CIVILIAN LABOR FORCE	CIVILIAN LABOR FORCE SA	EMPLOYMENT	EMPLOYMENT SA	UNEMPLOYMENT	UNEMPLOYMENT SA	UNEMPLOYMENT RATE	UNEMPLOYMENT RATE SA	WAGES & SALARIES ($ 000)	WAGES & SALARIES SA ($ 000)
1980	121,983		115,442		6,542		5.4		1,593,378	
1981	127,292		120,150		7,142		5.6		1,730,562	
1982	132,383		121,517		10,867		8.2		1,774,765	
1983	132,075		121,017		11,058		8.4		1,837,658	
1984	128,008		120,050		7,958		6.2		2,010,233	
1985	132,700		123,642		9,058		6.8		2,158,631	
1986	134,242		127,233		7,008		5.2		2,326,948	
1987	137,083		129,275		7,808		5.7		2,541,023	
1988	139,233		132,783		6,458		4.6		2,766,811	
1989	136,950		130,475		6,467		4.7		2,957,204	
1989:3	137,200	137,795	130,200	130,676	7,100	7,371	5.2	4.6	690,961 *	711,192 *
1989:4	137,300	137,927	131,200	131,112	6,100	7,013	4.4	4.3		
1989:5	137,100	141,120	131,100	133,657	6,000	7,110	4.4	4.7		
1989:6	136,200	138,498	129,800	131,669	6,300	6,971	4.6	5.1	713,735	724,593
1989:7	136,600	136,339	130,400	128,422	6,200	7,796	4.6	5.2		
1989:8	135,600	137,883	129,900	129,788	5,700	7,968	4.2	4.8		
1989:9	135,900	138,533	129,600	130,212	6,300	8,622	4.6	5.5	742,896	733,431
1989:10	138,200	138,223	132,100	130,749	6,000	7,424	4.4	5.0		
1989:11	137,600	139,440	131,700	132,070	5,900	7,278	4.3	4.4		
1989:12	137,600	139,146	131,500	132,220	6,100	6,812	4.5	4.0	809,611	784,519
1990:1	135,000	139,436	127,400	133,063	7,600	6,330	5.6	4.4		
1990:2	136,900	139,080	129,300	133,484	7,600	5,569	5.6	4.6		
1990:3	136,800	139,841	129,800	134,895	6,900	5,076	5.1	4.6	n/a	n/a

INDUSTRIAL EMPLOYMENT: Clark County

(Number of Jobs)

Year / Month	Mining	Manufacturing	Transportation	Public Utilities	TRADE		
					Wholesale	Retail	TOTAL
1980	475	6,858	7,700	5,425	6,167	39,625	45,792
1981	508	7,283	8,008	5,825	6,450	41,608	48,058
1982	425	6,617	7,800	6,083	6,342	39,092	45,433
1983	300	7,092	7,842	5,958	6,667	39,308	45,975
1984	300	7,458	8,108	6,075	7,483	41,333	48,817
1985	242	7,792	8,383	6,025	8,308	43,867	52,175
1986	300	8,050	8,917	5,983	8,950	45,950	54,900
1987	283	8,700	9,658	6,058	10,100	50,200	60,300
1988	217	9,433	9,950	6,400	11,008	53,808	64,817
1989	267	9,967	11,050	6,825	12,392	60,075	72,467
1989:3	200	9,700	10,400	6,600	12,000	57,500	69,500
1989:4	200	9,700	10,900	6,800	12,100	57,900	70,000
1989:5	300	10,000	11,100	6,700	12,300	58,500	70,800
1989:6	300	10,100	11,100	6,800	12,400	59,600	72,000
1989:7	300	10,100	11,200	6,800	12,600	60,800	73,400
1989:8	300	10,200	11,400	6,800	12,500	61,500	74,000
1989:9	300	10,300	11,500	6,800	12,600	61,900	74,500
1989:10	300	10,300	11,500	7,200	12,900	62,000	74,900
1989:11	300	10,200	11,600	7,200	12,900	63,500	76,400
1989:12	300	10,200	11,600	7,100	12,900	65,000	77,900
1990:1	300	10,200	11,600	7,000	13,000	63,200	76,200
1990:2	300	10,300	11,700	7,000	13,100	63,300	76,400
1990:3	300	10,400	11,800	7,200	13,300	63,700	77,000

INDUSTRIAL EMPLOYMENT: Clark County

(Number of Jobs)

Year / Month	F.I.R.E.	SERVICE			GOVERNMENT		
		Hotels & Gaming	Other	TOTAL	Federal	State and Local	TOTAL
1980	10,083	69,883	31,208	101,092	4,842	21,058	25,900
1981	10,133	70,233	33,167	103,400	4,758	21,650	26,408
1982	10,133	70,467	32,608	103,075	4,958	22,559	27,517
1983	10,475	71,000	33,642	104,642	4,942	22,350	27,292
1984	11,475	73,592	36,208	109,800	5,158	22,950	28,108
1985	12,617	77,858	37,983	115,842	5,500	23,792	29,292
1986	13,300	81,158	41,858	123,017	5,875	24,908	30,783
1987	14,050	88,675	45,950	134,625	6,158	26,117	32,275
1988	15,208	95,117	49,925	145,042	6,383	27,508	33,892
1989	16,375	100,333	56,275	156,608	6,658	29,333	35,992
1989:3	16,000	95,900	54,500	150,400	6,600	29,800	36,400
1989:4	16,100	99,000	54,300	153,300	6,600	30,000	36,600
1989:5	16,500	99,700	55,600	155,300	6,600	30,100	36,700
1989:6	16,500	100,900	56,000	156,900	6,600	28,400	35,000
1989:7	16,700	102,500	55,900	158,400	6,700	26,200	32,900
1989:8	16,600	101,900	58,100	160,000	6,700	26,300	33,000
1989:9	16,600	102,400	58,700	161,100	6,700	29,500	36,200
1989:10	16,700	103,000	58,300	161,300	6,800	31,000	37,800
1989:11	16,700	104,100	59,400	163,500	6,700	31,200	37,900
1989:12	16,700	105,300	59,000	164,300	6,700	31,300	38,000
1990:1	16,500	107,000	59,900	166,900	6,700	31,400	38,100
1990:2	16,700	107,200	59,400	166,600	6,700	31,600	38,300
1990:3	16,800	107,500	60,000	167,500	6,700	32,000	38,700

INDUSTRIAL EMPLOYMENT: Washoe County

(Number of Jobs)

Year / Month	Mining	Manufacturing	Transportation	Public Utilities	TRADE		
					Wholesale	Retail	TOTAL
1980	992	8,100	3,767	4,342	5,925	18,692	24,617
1981	867	8,317	3,692	4,550	6,433	18,583	25,017
1982	658	7,833	3,775	4,383	6,200	18,108	24,308
1983	592	7,508	3,792	4,108	5,925	18,433	24,358
1984	725	8,125	3,933	3,933	6,033	20,167	26,200
1985	700	8,333	4,033	3,892	6,200	21,183	27,383
1986	758	8,225	4,625	4,033	6,458	21,817	28,267
1987	933	8,450	4,850	4,150	7,283	22,267	29,550
1988	1,225	8,650	5,192	4,208	7,725	23,575	31,317
1989	1,508	8,500	5,300	4,100	8,300	24,200	32,500
1989:3	1,400	8,500	5,500	4,100	8,200	23,100	31,300
1989:4	1,400	8,400	5,300	4,100	8,200	23,000	31,200
1989:5	1,500	8,500	5,300	4,200	8,300	23,500	31,800
1989:6	1,500	8,500	5,300	4,300	8,400	23,800	32,200
1989:7	1,600	8,500	5,200	4,300	8,500	24,000	32,500
1989:8	1,600	8,600	5,300	3,700	8,400	24,400	32,800
1989:9	1,700	8,600	5,200	4,200	8,400	24,800	33,200
1989:10	1,600	8,500	5,200	4,200	8,400	25,000	33,400
1989:11	1,600	8,600	5,300	4,100	8,500	25,500	34,000
1989:12	1,600	8,600	5,400	4,100	8,400	26,000	34,400
1990:1	1,600	8,500	5,100	4,000	8,400	24,700	33,100
1990:2	1,500	8,500	5,100	4,000	8,400	24,500	32,900
1990:3	1,500	8,600	5,200	4,000	8,400	24,700	33,100

INDUSTRIAL EMPLOYMENT: Washoe County

(Number of Jobs)

Year / Month	F.I.R.E	SERVICE			GOVERNMENT		
		Hotels & Gaming	Other	TOTAL	Federal	State and Local	TOTAL
1980	6,075	28,608	14,550	43,158	13,425	2,717	16,142
1981	6,142	28,175	15,458	43,633	13,517	2,575	16,092
1982	6,108	27,808	15,975	43,783	13,842	2,683	16,525
1983	6,183	27,242	16,508	43,750	13,717	2,758	16,475
1984	6,400	28,958	17,792	46,750	13,883	2,767	16,650
1985	6,392	29,258	19,033	48,292	13,833	2,867	16,700
1986	6,750	29,367	21,742	51,108	12,767	2,842	15,608
1987	7,008	30,308	23,308	53,617	13,142	2,908	16,050
1988	6,842	31,033	24,208	55,242	13,875	2,908	16,783
1989	6,600	31,200	26,800	58,000	14,408	2,933	17,342
1989:3	6,400	30,200	25,400	55,600	14,800	2,900	17,700
1989:4	6,500	31,000	26,000	57,000	14,700	2,900	17,600
1989:5	6,500	31,000	26,500	57,500	14,800	3,000	17,800
1989:6	6,700	31,900	27,300	59,200	14,000	3,000	17,000
1989:7	6,700	32,500	27,600	60,100	13,100	3,000	16,100
1989:8	6,800	32,700	27,800	60,500	13,300	3,000	16,300
1989:9	6,900	32,200	27,800	60,000	14,300	2,900	17,200
1989:10	6,800	31,800	27,500	59,300	15,100	2,900	18,000
1989:11	6,800	31,300	27,600	58,900	15,100	2,900	18,000
1989:12	6,700	30,700	27,600	58,300	15,200	2,900	18,100
1990:1	6,700	30,700	27,500	58,200	14,600	2,900	17,500
1990:2	6,800	30,600	27,900	58,500	15,400	2,900	18,300
1990:3	6,900	30,800	28,200	59,000	15,400	2,900	18,300

AVERAGE WEEKLY HOURS: Clark County

Year / Month	Construction	Manufacturing	Durable Goods	Non Durable Goods	Public Utilities	Transportation *	Wholesale Trade	Retail Trade
1980	33.9	39.4	40.2	37.8		40.0	38.3	29.8
1981	35.5	39.8	40.4	38.9		40.4	38.2	31.1
1982	34.3	39.2	39.0	39.5		39.9	37.6	30.8
1983	35.1	39.4	39.2	39.9		40.1	38.1	31.0
1984	36.4	39.6	39.3	40.2		40.6	37.6	31.0
1985	35.6	39.9	39.4	40.5		40.7	38.2	30.9
1986	36.5	39.4	39.4	39.4		40.8	37.4	30.6
1987	35.6	40.2	40.8	39.4		40.4	38.0	31.3
1988	36.6	40.2	40.6	39.5		40.9	39.2	31.8
1989	38.3	42.5	44.0	40.2	41.8	33.8	39.3	32.7
1989:3	37.6	42.1	43.8	39.6	42.6	33.5	39.3	32.4
1989:4	37.9	42.6	43.8	40.7	42.8	34.4	39.4	33.4
1989:5	38.0	43.5	46.1	39.6	41.1	34.2	39.3	33.3
1989:6	37.7	42.6	43.4	41.4	40.7	34.4	41.1	33.1
1989:7	39.8	42.5	44.0	40.1	40.9	34.5	38.0	33.9
1989:8	39.5	42.6	44.2	40.2	41.4	34.3	39.7	33.3
1989:9	39.1	42.7	43.9	40.9	40.9	33.4	39.3	32.3
1989:10	39.1	42.4	44.1	39.9	42.6	33.0	38.8	31.9
1989:11	38.6	43.5	46.5	38.9	43.2	33.3	39.4	32.2
1989:12	39.5	42.5	44.2	39.8	42.0	34.1	38.6	33.3
1990:1	36.8	42.9	45.2	39.4	41.8	33.7	39.7	32.5
1990:2	37.9	41.8	42.7	40.3	41.3	33.4	39.6	32.2
1990:3	38.8	42.7	43.7	41.0	41.8	32.9	39.7	31.6

* Excluding Railroads.

AVERAGE HOURLY EARNINGS: Clark County

Year / Month	Construction	Manufacturing	Durable Goods	Non Durable Goods	Public Utilities	Transportation	Wholesale Trade	Retail Trade
1980	13.98	9.12	9.60	8.15		8.31	7.85	5.85
1981	15.70	10.49	11.42	8.42		9.22	8.55	5.96
1982	17.20	10.68	11.51	9.19		9.93	9.05	6.48
1983	16.82	10.91	11.50	9.91		10.71	8.96	6.52
1984	16.55	11.37	11.96	10.30		11.03	9.58	6.57
1985	16.04	11.07	11.92	9.84		11.08	9.89	6.89
1986	16.33	11.32	12.51	9.59		11.36	10.16	7.14
1987	16.50	12.16	13.56	10.09		11.68	10.64	7.57
1988	16.13	12.60	13.91	10.70		12.15	10.74	7.82
1989	16.52	12.87	14.09	10.84	15.21	8.42	11.22	7.79
1989:3	15.97	13.08	14.08	11.38	14.94	8.40	10.95	7.82
1989:4	16.12	12.73	13.84	10.91	15.16	8.30	11.26	7.63
1989:5	16.05	12.42	13.48	10.55	15.19	8.15	10.99	7.53
1989:6	16.34	12.93	14.21	10.81	15.16	8.42	10.98	7.82
1989:7	17.44	13.23	14.47	11.07	15.26	8.43	11.41	7.80
1989:8	16.88	12.60	13.69	10.75	15.26	8.31	11.17	7.66
1989:9	16.82	12.57	13.67	10.76	15.03	8.48	11.41	7.81
1989:10	16.61	12.96	14.38	10.53	15.38	8.71	11.55	8.04
1989:11	16.81	12.93	14.00	10.98	15.72	8.61	11.43	7.96
1989:12	17.07	13.12	14.32	11.07	15.36	8.54	11.44	7.93
1990:1	16.48	13.37	14.75	10.93	15.86	8.67	11.35	8.02
1990:2	16.63	13.07	14.27	11.02	15.43	8.86	11.58	8.19
1990:3	16.93	13.06	14.34	10.79	15.30	9.05	11.31	8.49

* Excluding Railroads.

TAXABLE SALES and GAMING REVENUES: Clark and Washoe Counties

Year / Quarter	Clark County				Washoe County			
	TAXABLE SALES		GAMING REVENUES		TAXABLE SALES		GAMING REVENUES	
	($ 000)	Growth Rate	($ 000)	Growth Rate	($ 000)	Growth Rate	($ 000)	Growth Rate
1980	3,325,218	0.62	1,619,081	13.69	1,694,981	1.92	456,771	8.06
1981	3,637,724	9.40	1,676,406	3.54	1,713,817	1.11	508,334	11.29
1982	3,576,901	-1.67	1,751,442	4.48	1,582,927	-7.64	527,760	3.82
1983	3,798,376	6.19	1,886,757	7.73	1,645,578	3.96	585,722	10.98
1984	4,119,297	8.45	2,008,115	6.43	1,864,754	13.32	640,718	9.39
1985	4,547,519	10.40	2,232,924	11.20	2,013,287	7.97	649,410	1.36
1986	5,095,676	12.05	2,393,155	7.18	2,179,765	8.27	655,997	1.01
1987	5,672,438	11.32	2,737,999	14.41	2,278,223	4.52	700,373	6.76
1988	6,412,864	13.05	3,001,801	9.63	2,520,906	10.65	742,133	5.96
1989	7,686,354	19.86	3,289,929	9.60	2,680,937	6.35	753,792	2.00
1988:4	1,747,154	12.92	767,810	13.74	667,744	10.08	172,125	1.92
1989:1	1,770,989	22.99	813,888	9.05	616,365	10.03	162,611	-2.06
1989:2	1,856,915	16.94	828,827	14.87	670,021	4.36	192,726	-2.02
1989:3	1,910,493	16.65	827,827	8.06	679,569	4.39	217,635	5.00
1989:4	2,147,957	22.94	819,387	6.72	714,982	7.07	180,820	5.05
1990:1			971,281				172,262	

Data Note: Annual values are sums of quarterly values.

CONSTRUCTION: Clark County
RESIDENTIAL PERMITS-PRIVATELY OWNED NEW HOUSING

Year / Month	UNITS		VALUATION		
	Total	Single Family	TOTAL ($ 000)	Single Family ($ 000)	Non-Residential ($ Million)
1980	8,005	4,106	257,418	175,042	316.6
1981	7,563	4,391	236,089	167,465	301.7
1982	6,234	3,055	187,404	126,562	169.8
1983	12,951	6,345	422,732	270,786	351.2
1984	9,571	4,575	368,456	222,572	272.7
1985	9,633	5,026	360,263	241,761	357.0
1986	11,845	7,019	522,164	383,888	444.7
1987	12,468	7,204	528,130	385,492	359.6
1988	26,446	9,884	1,036,662	546,545	419.6
1989	24,522	12,665	1,220,846	839,780	775.2
1989:3	2,177	828	89,012	46,502	164.2
1989:4	1,500	966	79,026	63,053	87.1
1989:5	1,948	858	85,522	48,827	52.6
1989:6	3,614	979	143,368	60,294	38.6
1989:7	1,761	1,032	93,946	71,528	43.6
1989:8	1,628	1,303	93,826	83,835	95.8
1989:9	1,640	890	80,284	59,479	47.6
1989:10	1,337	914	77,365	67,064	29.7
1989:11	2,232	1,285	150,848	106,223	64.0
1989:12	2,214	1,237	138,213	106,447	46.8
1990:1	2,462	889	156,169	80,852	66.4
1990:2	1,633	889	86,240	62,435	n/a
1990:3	2,339	989	153,953	93,172	n/a

Data Note: Annual values are sums of monthly values.

COUNTY ECONOMIC PROFILES

CARSON CITY Profile:

Year / Month	POPULATION Residents	%Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	32,258	1.4	16,994	1,372	7.5		218,061	32,212	n/a	138	100
1981	33,200	2.9	18,084	1,633	8.3		199,371	32,449	n/a	136	106
1982	33,930	2.2	17,972	2,358	11.6		188,009	33,011	n/a	94	60
1983	34,430	1.5	18,409	2,317	11.2		223,612	34,893	n/a	230	201
1984	34,750	0.9	17,651	1,740	9.0		257,041	39,301	27.1	202	193
1985	35,400	1.9	18,872	1,843	8.9		280,183	39,206	24.5	322	248
1986	36,040	1.8	19,558	1,233	6.0		310,847	38,063	27.3	494	430
1987	36,650	1.7	20,030	1,362	6.3		331,413	35,663	27.9	411	343
1988	37,850	3.8	20,773	1,120	5.1		367,594	37,429	30.5	341	321
1989	39,420	4.6	20,636	1,245	5.7		409,328	38,548	31.2	464	378
1989:3			20,980	1,390	6.2	5.4	92,794 *	7,557 *	1.8	130	94
1989:4			20,730	1,310	6.0	5.7			2.0	22	22
1989:5			20,560	1,130	5.2	5.5			3.1	38	38
1989:6			20,650	1,120	5.1	5.7	101,547	10,161	3.4	53	33
1989:7			20,770	1,140	5.2	5.8			4.0	40	34
1989:8			20,610	1,050	4.9	5.5			4.0	16	16
1989:9			20,510	1,160	5.4	6.6	106,442	11,367	4.1	67	59
1989:10			20,720	1,110	5.1	5.9			2.9	45	29
1989:11			20,460	1,180	5.4	5.5			1.5	19	19
1989:12			20,410	1,080	5.0	4.6	108,544	9,499	1.8	34	34
1990:1			19,780	1,430	6.7	5.4			1.5	44	36
1990:2			20,030	1,400	6.5	5.4			1.2	14	14
1990:3			20,180	1,310	6.1	5.3		8,203	2.0	92	60

* Figures available on a quarterly basis.

CHURCHILL COUNTY Profile:

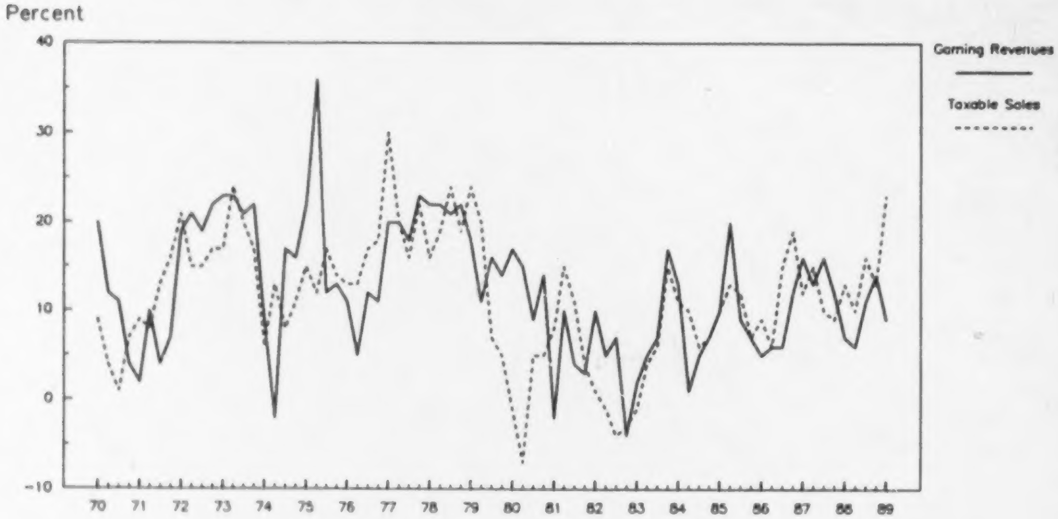
Year/ Month	POPULATION Residents	%Chg	EMPLOY MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)	CONSTRUCTION UNITS Total	Single Family
1980	14,038		5,309	388	6.8		63,443	n/a	n/a	248	80
1981	14,520	3.4	5,558	506	8.3		58,750	n/a	n/a	53	48
1982	14,630	0.8	5,695	896	13.7		56,945	3,941	n/a	31	19
1983	14,800	1.2	5,779	900	13.5		63,650	4,548	n/a	57	41
1984	15,050	1.7	5,833	681	10.5		75,396	4,472	5.0	94	75
1985	15,450	2.7	6,442	721	10.1		89,477	5,488	5.6	127	66
1986	15,800	2.3	6,695	511	7.1		92,578	5,981	6.2	171	106
1987	17,460	10.5	7,427	613	7.7		110,825	6,878	7.1	249	125
1988	18,830	8.3	8,028	519	6.1		120,138	7,597	7.8	127	83
1989	19,640	4.8	7,914	578	6.8		118,624	7,803	8.7	116	87
1989:3			7,980	680	7.8	6.8	25,096 *	1,798 *	0.7	35	14
1989:4			8,000	520	6.1	5.9			0.7	13	10
1989:5			7,930	520	6.2	6.6			0.8	10	10
1989:6			7,950	520	6.1	6.7	27,012	2,108	0.9	10	10
1989:7			8,160	600	6.9	7.9			0.9	11	9
1989:8			7,990	460	5.5	6.8			0.9	11	11
1989:9			7,960	580	6.7	8.3	30,451	1,952	0.8	5	5
1989:10			7,980	490	5.8	6.7			0.7	8	8
1989:11			7,940	560	6.5	6.8			0.7	9	6
1989:12			7,960	500	5.9	5.6	36,066	1,945	0.6	4	4
1990:1			7,930	640	7.4	5.6			0.6	2	2
1990:2			8,110	600	6.9	5.1			0.5	10	10
1990:3			8,210	560	6.4	5.6		1,935	0.8	9	9

* Figures available on a quarterly basis.

GROSS GAMING REVENUES VS TAXABLE SALES

Clark County

Percent Change from Year-Ago-Quarter



CLARK COUNTY Profile:

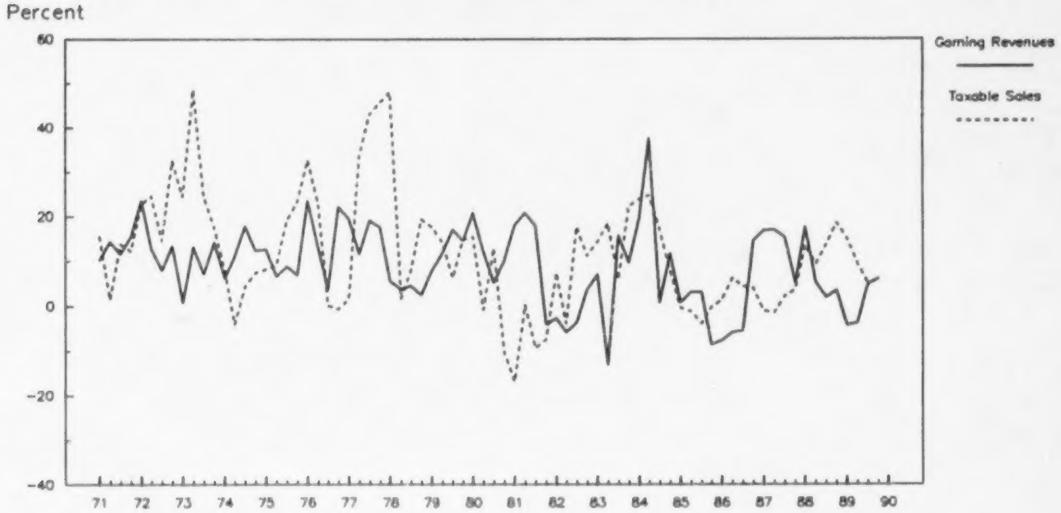
Year/ Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX	CONSTRUCTION UNITS	
	Residents	%Chg				SA	($ 000)	($ 000)	($ 000)	Total	Single Family
1980	469,362	6.3	221,492	16,217	6.8		3,325,218	1,619,081	n/a	8,005	4,106
1981	494,460	5.3	237,325	20,442	7.9		3,637,724	1,676,406	n/a	7,563	4,391
1982	511,930	3.5	239,958	29,358	10.9		3,576,901	1,751,442	n/a	6,234	3,055
1983	531,210	3.8	244,000	28,067	10.3		3,798,376	1,886,757	n/a	12,951	6,345
1984	546,580	2.9	260,325	24,125	8.5		4,119,297	2,008,115	1,683.8	9,571	4,575
1985	572,140	4.7	270,900	25,375	8.6		4,547,519	2,232,924	1,899.4	9,633	5,026
1986	600,160	4.9	286,267	19,125	6.3		5,095,676	2,393,155	2,152.8	11,845	7,019
1987	631,920	5.3	303,575	21,042	6.5		5,672,438	2,737,999	2,424.6	12,468	7,204
1988	681,440	8.3	323,642	18,383	5.4		6,412,864	3,001,801	2,728.0	26,446	9,884
1989	733,180	8.1	341,525	17,825	5.0		7,686,354	3,289,595	2,829.1	24,495	12,677
1989:3			337,300	19,000	5.3	5.3	1,770,989 *	813,935 *	237.9	2,177	828
1989:4			341,100	17,200	4.8	4.9			270.0	1,500	966
1989:5			340,700	16,900	4.7	5.0			258.2	1,948	858
1989:6			336,900	18,900	5.3	5.3	1,856,915	828,446	213.7	3,587	967
1989:7			338,700	18,900	5.3	5.2			247.1	1,738	1,022
1989:8			340,100	17,500	4.9	5.0			228.2	1,628	1,303
1989:9			341,400	18,100	5.0	5.3	1,910,493	827,827	241.6	1,640	890
1989:10			351,200	17,600	4.8	4.9			244.2	1,315	903
1989:11			352,900	16,700	4.5	4.7			255.7	2,232	1,285
1989:12			355,500	15,500	4.2	3.9	2,147,957	819,387	196.8	2,214	1,237
1990:1			351,300	16,700	4.5	4.3			286.8	2,440	880
1990:2			354,800	16,200	4.4	4.2			253.5	1,633	889
1990:3			356,700	17,300	4.6	4.6		971,281	273.3	2,322	978

* **Figures available on a quarterly basis.**

GROSS GAMING REVENUES VS TAXABLE SALES

Douglas County

Percent Change from Year-Ago-Quarter



DOUGLAS COUNTY Profile:

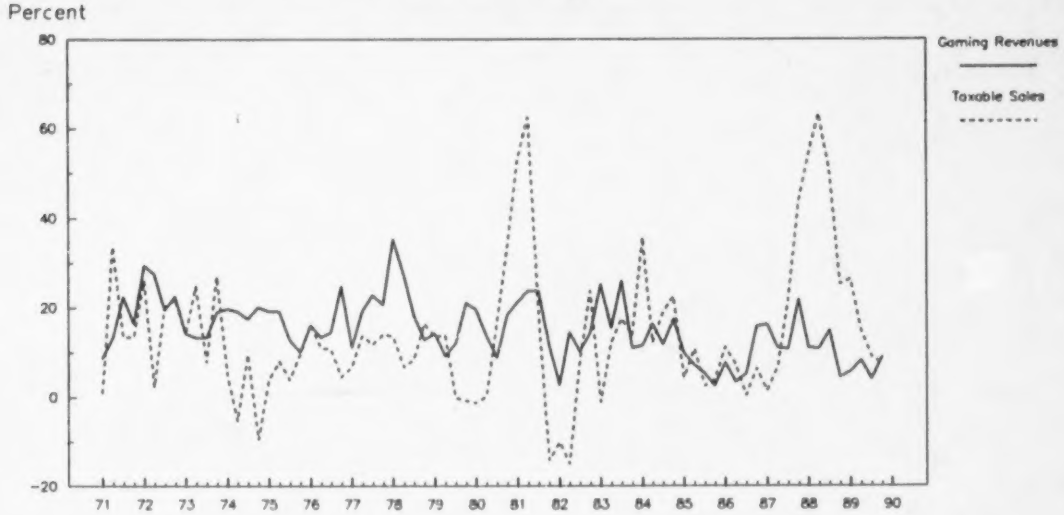
Year / Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX	CONSTRUCTION UNITS	
	Residents	%Chg				SA	($ 000)	($ 000)	($ 000)	Total	Single Family
1980	19,421	0.1	7,973	628	7.3		168,853	212,605	n/a	630	307
1981	20,870	7.5	8,014	788	9.0		154,601	241,931	n/a	n/a	n/a
1982	21,560	3.3	8,097	900	10.0		167,772	236,847	n/a	166	166
1983	22,190	2.9	8,155	924	10.3		192,076	248,915	n/a	254	244
1984	23,190	4.5	11,660	706	5.7		227,039	285,802	143.2	462	370
1985	24,660	12.9	12,338	844	6.5		223,621	286,564	154.9	390	336
1986	26,170	12.3	12,404	766	5.8		233,013	280,251	171.6	411	327
1987	27,690	10.5	11,732	833	6.7		235,260	319,450	193.5	341	304
1988	28,910	4.9	11,834	683	5.5		267,690	338,664	214.8	550	520
1989	30,410	5.7	11,941	663	5.3		290,757	343,658	222.7		
1989:3			11,640	670	5.4	4.7	68,176 *	78,971 *	17.7		
1989:4			11,710	640	5.2	4.7			18.1		
1989:5			11,780	620	5.0	5.0			22.1		
1989:6			12,330	650	5.0	5.8	70,068	81,823	13.6		
1989:7			12,620	580	4.4	5.7			16.3		
1989:8			12,280	580	4.5	5.8			20.9		
1989:9			12,030	630	4.9	6.4	83,564	111,354	23.4		
1989:10			12,010	620	4.9	5.5			20.8		
1989:11			11,870	740	5.9	5.7			18.9		
1989:12			11,730	620	5.0	4.1	68,949	71,510	21.1		
1990:1			11,410	680	5.6	4.3			8.5		
1990:2			11,520	690	5.6	4.6			25.7		
1990:3			11,680	700	5.7	5.0		84,108	22.3		

*** Figures available on a quarterly basis.**

GROSS GAMING REVENUES VS TAXABLE SALES

Elko County

Percent Change from Year-Ago-Quarter



ELKO COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX	CONSTRUCTION UNITS	
	Residents	%Chg				SA	($ 000)	($ 000)	($ 000)	Total	Single Family
1980	17,573	9.1	10,058	504	4.8		109,505	37,637	n/a	197	165
1981	18,970	7.9	11,482	636	5.2		137,564	45,335	n/a	290	124
1982	19,760	4.2	11,990	1,107	8.5		137,883	50,204	n/a	157	135
1983	20,770	5.1	12,327	1,073	8.1		153,729	60,080	n/a	253	123
1984	21,830	5.1	11,319	840	7.0		186,347	68,636	58.3	361	103
1985	22,850	4.7	11,878	948	7.5		196,169	72,903	58.6	257	87
1986	23,920	4.7	11,897	779	6.2		207,908	78,434	61.2	101	87
1987	25,000	4.5	12,279	827	6.4		248,059	89,946	71.3	281	153
1988	28,910	16.1	13,728	692	4.9		362,708	99,498	93.0	390	243
1989	33,270	15.6	14,633	804	5.2		411,720	106,165	99.3	758	540
1989:3			14,090	890	5.9	4.8	86,605 *	23,690 *	9.2	25	25
1989:4			14,410	640	4.3	4.1			6.4	51	51
1989:5			14,460	740	4.9	5.6			7.1	47	45
1989:6			14,680	960	6.1	7.1	107,679	27,313	12.7	45	45
1989:7			15,220	760	4.7	5.9			10.1	60	58
1989:8			15,240	780	4.9	6.4			10.1	179	67
1989:9			15,200	670	4.2	5.4	111,579	30,529	13.1	78	76
1989:10			15,260	850	5.3	6.1			7.6	144	44
1989:11			14,990	810	5.1	5.1			6.0	73	73
1989:12			14,810	780	5.0	4.5	105,857	24,633	7.0	22	22
1990:1			14,560	990	6.3	4.5			5.6	6	6
1990:2			14,780	930	5.9	4.3			5.1	76	12
1990:3			15,030	910	5.7	4.6		26,114	8.8	37	35

* Figures available on a quarterly basis.

ESMERALDA COUNTY Profile:

Year/ Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES
	Residents	% Chg				SA	($ 000)
1980	842	5.3	223	21	8.1		2,273
1981	1,100	30.6	358	31	7.9		2,809
1982	1,200	9.1	414	64	13.3		3,970
1983	1,330	10.8	363	76	17.4		8,235
1984	1,490	12.0	812	59	6.7		2,561
1985	1,380	-7.4	711	55	7.0		7,522
1986	1,380	0.0	702	38	5.1		7,209
1987	1,380	0.0	651	50	7.1		6,974
1988	1,300	-5.3	733	48	6.3		6,463
1989	1,240	-4.1	681	38	5.2		6,777
1989:3			680	50	7.1	7.1	1,366 *
1989:4			710	50	6.9	6.9	
1989:5			680	50	6.2	6.2	
1989:6			640	40	6.3	6.3	1,721
1989:7			660	30	4.9	4.9	
1989:8			660	20	3.2	3.2	
1989:9			670	30	3.9	3.9	1,985
1989:10			680	30	3.7	3.7	
1989:11			690	20	3.2	3.2	
1989:12			710	30	4.5	4.5	1,705
1990:1			670	50	6.6	6.6	
1990:2			680	50	6.8	6.8	
1990:3			700	40	6.0	6.0	

* Figures available on a quarterly basis.
Data Note: Gaming Revenues and Construction figures not available

EUREKA COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES
	Residents	% Chg				SA	($ 000)
1980	1,208	20.8	661	34	4.9		8,564
1981	1,250	3.5	701	41	5.1		8,243
1982	1,250	0.0	671	106	13.5		6,264
1983	1,270	1.6	692	75	9.8		11,107
1984	1,350	6.3	853	51	5.7		19,957
1985	1,450	7.4	1,114	72	6.1		30,074
1986	1,530	5.5	1,175	52	4.1		18,390
1987	1,950	27.5	1,403	38	2.7		37,150
1988	2,010	3.6	2,800	53	1.9		83,935
1989	2,280	13.9	3,076	75	2.4		98,792
1989:3			3,120	90	2.7	2.6	24,785 *
1989:4			3,150	50	1.6	1.5	
1989:5			3,220	50	1.5	1.6	
1989:6			3,050	60	2.0	2.1	26,513
1989:7			3,090	90	2.8	3.0	
1989:8			3,060	60	1.9	1.9	
1989:9			3,010	120	3.8	3.9	22,383
1989:10			3,030	50	1.6	1.6	
1989:11			3,050	80	2.6	2.5	
1989:12			2,970	60	2.0	2.0	25,111
1990:1			3,090	110	3.4	3.1	
1990:2			3,100	70	2.1	2.0	
1990:3			3,180	70	2.2	2.1	

* Figures available on a quarterly basis.
Data Note: Gaming Revenues, Room Tax and Construction figures not available

HUMBOLDT COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX	CONSTRUCTION UNITS	
	Residents	%Chg				SA	($ 000)	($ 000)	($ 000)	Total	Single Family
1980	9,699	12.8	5,168	225	4.2		62,455	7,492	n/a	117	117
1981	10,700	10.3	5,687	312	5.2		62,873	8,588	n/a	88	64
1982	11,430	6.8	5,211	598	10.3		66,833	8,051	n/a	67	67
1983	11,480	0.4	5,175	657	11.3		100,169	8,829	n/a	26	22
1984	11,790	2.7	5,059	508	9.2		90,965	8,630	20.4	8	8
1985	11,880	0.8	4,934	494	9.2		137,583	8,226	21.5	10	4
1986	11,820	-0.5	4,838	383	7.4		117,243	8,280	22.0	34	34
1987	12,180	3.0	5,397	355	6.3		142,639	9,833	26.7	25	25
1988	[illegible]	6.7	6,326	283	4.4		183,069	11,342	32.3	120	53
1989	14,240	10.5	6,853	381	5.3		208,738	11,697	33.7	49	39
1989:3			6,610	410	5.9	[illegible]	51,533	• 2,235 •	2.1	5	5
1989:4			6,770	330	4.7	4.7			2.5	14	6
1989:5			6,860	280	3.9	4.0			3.0	0	0
1989:6			7,000	430	5.8	7.1	46,367	3,243	4.1	5	5
1989:7			7,270	390	5.1	6.5			4.5	7	5
1989:8			7,150	360	4.8	6.4			4.2	5	5
1989:9			7,140	380	5.0	6.3	51,860	3,491	3.5	4	4
1989:10			7,040	370	4.9	5.2			2.7	4	4
1989:11			6,890	380	5.2	5.4			2.1	2	2
1989:12			6,820	370	5.1	4.4	58,978	2,728	1.7	3	3
1990:1			6,660	440	6.1	4.3			1.5	4	4
1990:2			6,820	460	6.3	4.8			1.4	2	2
1990:3			6,940	410	5.6	4.7		2,439	2.1	6	6

• Figures available on a quarterly basis.

LANDER COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)
1980	4,257	18.3	2,249	90	3.9		31,903	n/a
1981	4,980	17.0	2,519	108	4.1		27,748	n/a
1982	4,970	-0.2	2,290	241	9.6		29,241	n/a
1983	4,700	-5.4	2,018	281	12.2		38,493	n/a
1984	4,570	-2.8	1,947	155	7.4		39,069	5.6
1985	4,500	-1.5	1,988	175	8.2		33,820	3.2
1986	4,490	-0.2	1,888	198	9.4		36,999	3.9
1987	4,580	2.0	2,327	148	6.1		50,618	5.3
1988	5,430	19.1	2,784	144	5.0		65,675	6.1
1989	6,190	14.5	3,185	194	5.7		88,375	6.1
1989:3			3,200	190	5.7	4.3	20,662 •	0.0
1989:4			3,320	170	4.8	4.3		0.6
1989:5			3,110	180	5.3	5.9		1.1
1989:6			3,160	190	5.8	6.4	20,641	0.0
1989:7			3,240	170	5.0	6.1		0.6
1989:8			3,230	190	5.4	7.2		0.6
1989:9			3,220	200	5.8	7.0	22,612	0.7
1989:10			3,250	220	6.4	7.6		0.6
1989:11			3,230	250	7.1	7.3		0.0
1989:12			3,250	210	6.1	6.2	24,460	1.0
1990:1			3,260	260	7.3	5.5		0.0
1990:2			3,300	270	7.7	5.8		0.6
1990:3			3,310	270	7.4	5.6		0.3

• Figures available on a quarterly basis.
Data Note: Construction figures not available

LINCOLN COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)
1980	3,786	5.2	1,837	86	4.5		9,162	n/a
1981	4,000	5.7	2,301	146	5.9		8,211	n/a
1982	4,130	3.3	2,475	337	12.0		9,134	n/a
1983	4,060	-1.7	2,340	226	8.8		8,817	n/a
1984	4,100	1.0	2,098	145	6.5		9,024	0.4
1985	4,200	2.4	2,060	148	6.7		9,068	0.4
1986	4,200	0.0	2,031	120	5.6		7,529	0.5
1987	4,250	1.2	2,120	133	5.9		8,276	0.6
1988	4,320	2.1	2,087	101	4.6		10,078	1.0
1989	4,330	0.7	2,041	113	5.3		11,097	1.4
1989:3			2,050	100	4.8	4.7	2,261	* 0.1
1989:4			2,050	120	5.4	5.7		0.1
1989:5			2,030	80	3.9	4.4		0.1
1989:6			2,050	100	4.8	5.8	2,615	0.1
1989:7			2,090	120	5.4	6.1		0.1
1989:8			2,040	110	5.1	5.6		0.2
1989:9			2,030	140	6.4	6.1	3,341	0.1
1989:10			2,050	100	4.6	4.9		0.1
1989:11			2,040	130	6.0	5.4		0.1
1989:12			2,050	120	5.4	4.7	2,880	0.1
1990:1			2,040	140	6.4	5.6		0.1
1990:2			2,070	110	5.2	4.5		0.1
1990:3			2,080	140	6.2	6.1		0.1

* Figures available on a quarterly basis.
Data Note: Gaming Revenues, and Construction figures not available.

LYON COUNTY Profile:

Year/ Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES
	Residents	% Chg				SA	($ 000)
1980	13,735	10.8	3,893	322	7.6		44,804
1981	14,300	4.1	4,345	408	8.6		46,412
1982	14,850	3.8	4,686	686	12.8		44,023
1983	15,450	4.0	4,781	682	12.6		44,599
1984	16,200	4.9	8,098	608	7.1		52,811
1985	17,170	6.0	8,638	792	8.4		57,761
1986	18,040	5.1	9,384	668	6.7		63,109
1987	19,500	8.1	9,609	749	7.3		72,175
1988	20,590	6.1	10,979	619	5.4		78,479
1989	21,750	6.1	11,012	707	6.0		85,986
1989:3			10,960	730	6.3	5.1	20,910 *
1989:4			11,120	660	5.6	5.3	
1989:5			11,210	590	5.0	5.3	
1989:6			11,220	580	4.9	5.2	23,333
1989:7			11,360	640	5.3	6.2	
1989:8			11,270	550	4.7	5.7	
1989:9			11,070	780	6.6	8.0	22,044
1989:10			11,010	670	5.7	6.7	
1989:11			10,930	720	6.1	6.5	
1989:12			10,810	620	5.4	5.1	19,698
1990:1			11,480	860	6.9	5.5	
1990:2			11,590	840	6.8	5.3	
1990:3			11,810	780	6.2	5.0	

* Figures available on a quarterly basis.
Data Note: Gaming Revenues, Room Tax and Construction figures not available.

MINERAL COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	6,237	2.2	2,970	112	3.7		17,352	n/a	n/a
1981	6,300	1.0	3,246	164	4.8		17,970	n/a	n/a
1982	6,250	-0.8	3,224	297	8.4		17,429	n/a	n/a
1983	6,150	-1.6	3,428	275	7.4		20,782	n/a	n/a
1984	6,030	-2.0	2,852	218	7.1		26,128	n/a	4.5
1985	6,030	0.0	2,820	275	8.9		25,410	n/a	4.6
1986	6,130	1.7	2,804	213	7.0		27,202	n/a	4.8
1987	6,470	5.5	2,768	208	6.9		36,488	n/a	5.2
1988	7,150	11.0	2,943	150	4.9		42,821	n/a	6.3
1989	7,440	4.6	2,860	165	5.4		46,101		5.9
1989:3			2,940	160	5.3	5.1	14,181 *	1,705 *	0.5
1989:4			2,990	160	5.2	4.9			0.5
1989:5			2,920	200	6.4	6.6			0.5
1989:6			2,870	170	5.5	5.7	10,401	1,758	0.6
1989:7			2,860	160	5.2	5.4			0.6
1989:8			2,810	160	5.3	5.5			0.6
1989:9			2,780	160	5.6	6.4	9,994	1,987	0.6
1989:10			2,800	170	5.7	6.3			0.5
1989:11			2,780	130	4.6	4.1			0.4
1989:12			2,770	130	4.5	4.3	11,526		0.3
1990:1			2,720	170	5.9	5.4			0.3
1990:2			2,760	170	5.9	5.5			0.3
1990:3			2,750	200	6.7	6.4			0.4

* Figures available on a quarterly basis.
Data Note: Construction figures not available.

NYE COUNTY Profile:

Year / Month	POPULATION		EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	9,458	15.3	2,476	108	4.1		55,395	3,111	n/a
1981	11,100	17.4	2,965	143	4.6		63,974	4,299	n/a
1982	13,240	19.3	3,223	280	8.0		77,983	4,552	n/a
1983	13,700	3.5	3,348	292	8.0		65,423	4,615	n/a
1984	14,850	8.4	6,178	284	4.4		75,487	5,299	11.0
1985	14,850	0.0	6,588	436	6.2		77,251	5,766	11.8
1986	14,970	0.8	6,720	436	6.1		74,159	6,562	11.8
1987	15,520	3.7	6,853	413	5.7		162,428	n/a	15.0
1988	16,110	4.3	7,284	353	4.6		194,440	n/a	18.1
1989	17,980	12.1	7,486	361	4.6		205,008	11,257	20.9
1989:3			7,590	380	4.7	5.0	46,735 *	2,637 *	1.9
1989:4			7,520	340	4.3	4.0		-	1.7
1989:5			7,520	410	5.1	5.2			2.0
1989:6			7,550	360	4.5	4.3	52,099	2,821	1.9
1989:7			7,530	370	4.6	4.7			1.6
1989:8			7,410	300	3.9	4.1			2.1
1989:9			7,420	380	4.8	5.0	55,339	2,818	2.0
1989:10			7,510	360	4.6	4.6			2.0
1989:11			7,530	360	4.6	4.4			1.6
1989:12			7,540	330	4.1	4.3	50,835	2,981	1.3
1990:1			7,340	340	4.5	4.2			1.2
1990:2			7,420	350	4.6	4.6			1.3
1990:3			7,530	350	4.5	4.7		3,101	1.6

* Figures available on a quarterly basis.
Data Note: Construction figures not available.

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PERSHING COUNTY Profile:

Year / Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOYMENT RATE		TAXABLE SALES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)
1980	3,448	11.2	1,485	75	4.8		12,545	n/a
1981	3,610	4.7	1,955	108	5.2		12,590	n/a
1982	3,720	3.0	1,878	132	6.6		14,046	n/a
1983	3,710	-0.3	1,637	105	6.1		14,120	n/a
1984	3,650	-1.6	1,718	91	5.0		15,217	2.6
1985	3,660	0.3	1,733	108	5.9		15,792	2.8
1986	3,900	6.6	2,008	89	4.4		29,205	4.7
1987	4,390	12.6	2,138	88	3.9		31,279	4.8
1988	4,680	7.1	2,607	85	3.2		37,383	5.2
1989	4,820	3.5	2,653	101	3.7		39,562	5.3
1989:3			2,570	110	4.2	3.4	8,606 •	0.2
1989:4			2,660	80	3.1	3.3		0.3
1989:5			2,580	70	2.5	3.0		0.6
1989:6			2,640	100	3.6	4.8	12,065	0.6
1989:7			2,760	90	3.2	3.7		0.6
1989:8			2,720	70	2.6	3.4		0.6
1989:9			2,740	100	3.7	5.6	9,606	0.6
1989:10			2,750	160	5.5	5.4		0.5
1989:11			2,730	100	3.5	3.4		0.4
1989:12			2,740	100	3.7	2.9	9,285	0.4
1990:1			2,750	150	5.1	3.5		0.3
1990:2			2,810	140	4.7	3.3		0.3
1990:3			2,860	110	3.8	3.1		0.5

• Figures available on a quarterly basis.

Data Note: Gaming Revenues and Construction figures not available.

15

STOREY COUNTY Profile:

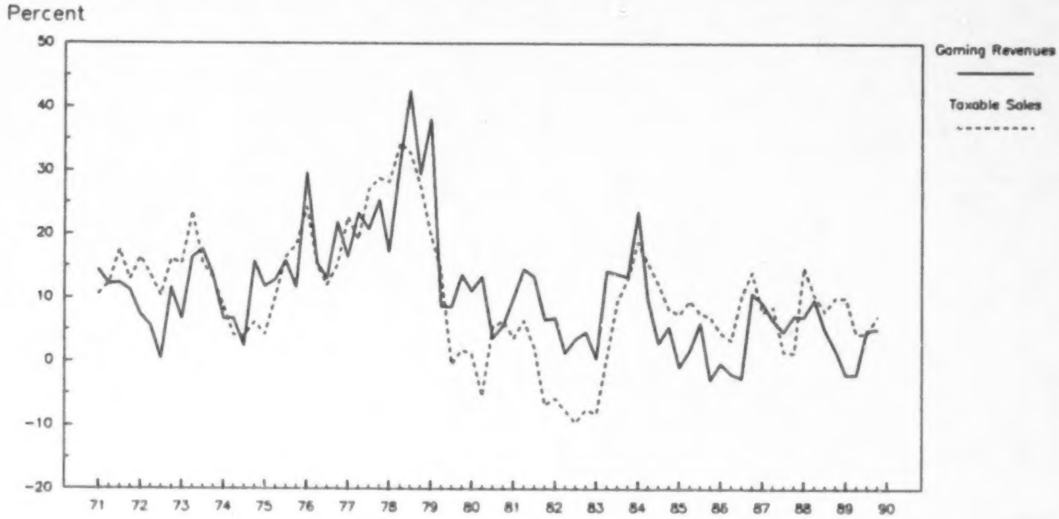
Year / Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOYMENT RATE		TAXABLE SALES	GAMING REVENUES	ROOM TAX
	Residents	% Chg				SA	($ 000)	($ 000)	($ 000)
1980	1,520	16.9	1,138	48	4.1		14,028	n/a	n/a
1981	1,590	4.6	1,275	103	7.5		9,054	n/a	n/a
1982	1,690	6.3	1,108	166	13.1		7,136	n/a	n/a
1983	1,730	2.4	1,147	227	16.7		7,753	n/a	n/a
1984	1,780	2.9	994	187	15.9		9,605	n/a	n/a
1985	1,850	3.9	824	98	10.5		10,880	n/a	n/a
1986	1,960	5.9	781	55	6.7		13,615	n/a	1.1
1987	2,130	8.7	838	56	6.3		13,688	n/a	1.5
1988	2,140	1.0	835	56	6.3		18,783	n/a	1.7
1989	2,480	16.4	906	48	5.1		16,962	2,618	1.9
1989:3			850	50	6.0	5.2	2,636 •	340 •	0.2
1989:4			910	50	5.3	5.2			0.1
1989:5			930	40	4.5	4.8			0.2
1989:6			960	30	3.3	3.9	4,766	779	0.1
1989:7			980	40	3.4	4.5			0.2
1989:8			980	30	3.2	4.0			0.2
1989:9			970	50	4.5	5.6	6,068	979	0.3
1989:10			930	40	4.4	4.8			0.2
1989:11			900	60	5.9	5.0			0.1
1989:12			870	50	5.5	4.2	3,491	520	0.1
1990:1			780	50	6.0	4.8			0.2
1990:2			780	60	6.6	5.1			0.1
1990:3			790	60	7.5	6.6		373	0.1

• Figures availabale on a quarterly basis.

GROSS GAMING REVENUES VS TAXABLE SALES

Washoe County

Percent Change from Year-Ago-Quarter



WASHOE COUNTY Profile:

Year / Month	POPULATION Residents	% Chg	EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOYMENT RATE	SA	TAXABLE SALES ($ 000)	GAMING REVENUES ($ 000)	ROOM TAX ($ 000)
1980	193,623	3.4	115,442	6,542	5.4		1,694,981	456,771	n/a
1981	201,620	4.1	120,150	7,142	5.6		1,713,817	508,334	n/a
1982	205,040	1.7	121,517	10,867	8.2		1,582,927	527,760	n/a
1983	210,860	2.8	121,017	11,058	8.4		1,645,578	585,722	n/a
1984	218,130	3.4	120,050	7,958	6.2		1,864,754	640,718	543.4
1985	224,340	2.8	123,642	9,058	6.8		2,013,287	649,410	574.0
1986	231,970	3.4	127,233	7,008	5.2		2,179,765	655,997	600.8
1987	238,010	2.6	129,275	7,808	5.7		2,278,223	700,373	651.4
1988	244,490	3.2	132,783	6,458	4.6		2,520,906	742,133	713.5
1989	251,130	3.2	130,475	6,467	4.7		2,680,937	753,792	718.2
1989:3			130,200	7,100	5.2	4.6	616,365 *	162,611 *	50.9
1989:4			131,200	6,100	4.4	4.3			59.7
1989:5			131,100	6,000	4.4	4.7			62.7
1989:6			129,800	6,300	4.6	5.1	670,021	192,726	66.2
1989:7			130,400	6,200	4.6	5.2			72.4
1989:8			129,900	5,700	4.2	4.8			79.7
1989:9			129,600	6,300	4.6	5.5	679,569	217,635	80.9
1989:10			132,100	6,000	4.4	5.0			67.6
1989:11			131,700	5,900	4.3	4.4			46.9
1989:12			131,500	6,100	4.5	4.0	714,982	180,820	46.2
1990:1			127,400	7,600	5.6	4.4			41.1
1990:2			129,300	7,600	5.6	4.6			52.3
1990:3			129,800	6,900	5.1	4.6		172,262	64.2

* Figures available on a quarterly basis.

Data Note: Construction figures not available.

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WHITE PINE COUNTY Profile:

Year/ Month	POPULATION		EMPLOY-MENT	UNEMPLOY-MENT	UNEMPLOY-MENT RATE		TAXABLE SALES ($ 000)	GA MING REVENUES ($ 000)	ROOM TAX ($ 000)
	Residents	% Chg				SA			
1980	8,286	2.3	3,647	233	6.0		46,000	n/a	n/a
1981	8,760	5.7	4,077	291	6.7		47,943	n/a	n/a
1982	8,680	-0.9	3,591	606	14.4		40,198	n/a	n/a
1983	7,820	-9.9	3,375	766	18.5		39,985	n/a	n/a
1984	7,660	-2.0	3,571	645	15.3		43,689	n/a	8.6
1985	7,560	-1.3	3,551	553	13.5		45,786	n/a	9.1
1986	7,800	3.2	3,659	336	8.5		43,888	n/a	8.4
1987	7,950	1.9	3,602	311	8.0		50,165	n/a	10.4
1988	8,480	7.2	3,850	259	6.4		65,054	n/a	12.5
1989	8,830	4.6	4,131	238	5.5		88,062	2,466	13.7
1989:3			3,800	280	6.8	6.4	19,264 *	475 *	0.9
1989:4			3,980	210	5.0	4.9			0.9
1989:5			4,090	180	4.2	4.3			1.2
1989:6			4,350	230	5.0	5.3	22,150	647	1.6
1989:7			4,380	240	5.2	5.4			1.5
1989:8			4,320	210	4.5	4.8			1.7
1989:9			4,280	210	4.7	4.9	24,627	712	1.5
1989:10			4,320	230	5.1	5.2			1.4
1989:11			4,330	220	4.8	4.8			1.0
1989:12			4,340	230	5.0	4.9	22,021	632	0.9
1990:1			4,460	240	5.2	4.8			0.7
1990:2			4,530	330	6.7	6.3			0.7
1990:3			4,610	270	5.5	5.3		637	1.0

* Figures available on a quarterly basis.

Data Note: Construction figures not available.

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